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ABSTRACT

Proposed in the report is a model quantitative cost accounting system designed to help school districts gather and report data useful in determining equitable reimbursement formulas for special education as compared with general education. Included are sections on the approach and methodology used to construct a hypothetical school district, concepts underlying the proposed cost system (such as ongoing analysis of planned versus actual expenditures), advantages of a standard cost system in special education (such as enabling educators to compare the costs of actual and alternative educational programs), curriculum and accounting applications, possible uses of the system by legislators and school administrators in such areas as preparing budgetary requests and planning future program, and pre-implementation recommendations (such as field testing the system in actual school districts). Discussed in a concluding section is the operation of the cost accounting system in a hypothetical school district. Two separately bound indexes contain detailed statistical and descriptive data on the hypothetical district. (LH)

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A MODEL FOR THE DETERMINATION OF THE COSTS OF SPECIAL EDUCATION AS COMPARED WITH THAT FOR GENERAL EDUCATION

JANUARY 1974

EC 080 168

Reading Draft

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December 26, 1973

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We have completed our study of the cost of special education as authorized by contract with the Governor's Office of Human Resources, State of Illinois, dated December 14, 1972, which was funded by the United States Department of Health, Education and Welfare under Grant OEH-0-72-4874.

Our work was undertaken for the State of Illinois to determine whether or not a better method than presently employed could be developed for the reimbursement to local school districts of the added costs incurred in the education of the special child over those costs associated with the education of the regular pupil. The United States Department of Health, Education and Welfare agreed to fund a portion of the cost of the study if the proposed system could be shown to be replicable among the various states. An initial review of the present system of reimbursement reporting disclosed a wide variation among school districts between the reported educational cost of the regular student as well as for the special student.

The question then posed was "How is a fair and equitable reimbursement made to those school districts providing the special education as required by state law?"

For the most part, the "cost" of education being reported represented the total expenditures of a district divided by the average number of student days of education delivered by the district. This method of reporting "cost" gave rise to significant differences in the cost per pupil computation that in no way reflected the quantity (or quality) of the educational services delivered. There appeared to be a tendency to reward the more affluent schools where a higher cost per pupil was reported because of lower class sizes, more expensive facilities, and more extensive administration -- all reflecting legitimate expenditures spread over a smaller base of students. Conversely, the less affluent schools, with large class sizes, old facilities, and thinly spread administration, recorded lower costs per student as a result of restricted budgets spread over a wide base of students.

The differences were not all identifiable by the affluence of the school district. The greater the amount of absenteeism, the higher the cost per pupil as those in attendance recorded a smaller base over which to spread the expenditures. If expenditure for administration exceeded that which was essential, the excess was found in a higher cost per student.

Our approach was to draw upon the more sophisticated techniques of cost accounting as they are applied in competitive economic areas. Basically, these systems are designed to identify in a systematic and logical fashion the elements of cost required on a predetermined basis to accomplish a given objective or goal, and then monitor on a continual process the differences between actual performance with the predetermined performance.

These differences, or variations, are identified as they occur with explanation as to the nature of the difference.

The information provided by the cost accounting system reports only on the amount of education delivered and does not report on the effectiveness of the education delivered, thus the system is quantitative in nature and not qualitative. It is conceivable, however, that such a cost accounting system (i.e. quantitative input) coupled with a program evaluation system (i.e. qualitative input) could arrive at cost-effectiveness decisions.

We developed a basic concept for use in the development of a modern cost system for education. The concept is based upon a "student educational unit" or SEU. (In this report, the SEU has been further identified as an EESEU, in order to recognize the special characteristics of the student educational unit adopted for the demonstration model described in this report.)

An EESEU represents a period of ten minutes during which the pupil is under the jurisdiction and responsibility of the school authorities.

In discussions with state and federal authorities, it was concluded that a demonstration of the system using a hypothetical school district would best illustrate the ability of the system to deal with the wide variety of educational processes employed throughout the country.

With this basic concept in mind, we made field trips to selected school districts in Illinois. The school districts were selected by the Governor's Office of the State of Illinois as representative not only of all districts in Illinois, but of the basic types of school districts within the United STates. These districts were:

City of Chicago, Illinois
Lake County, Illinois Special Education District
City of Peoria, Illinois
Joint Agreement for Southern Illinois (JAMP -
Johnson, Alexander, Massac and Pulaski Counties)

Our research visits to these school districts with their varying socioeconomic differences afforded us the opportunity not only to gain valuable insight into the problems associated with special education, but also to observe administrative procedures relating to the accumulation and recording of information. During these visits, we made tests of our cost concepts against the background of actual operations. We were able to conclude that the system we envisaged was sound and workable.

During meetings with the Exostate and In-state Councils (the membership of these councils is set forth in Appendix ___ of this report) an outline of the hypothetical school district was presented, together with a description of the EESEU concept. These meetings were most productive in the exchange of thoughts and opinions on the proposed system and its demonstration through the hypothetical school district. This report of the work conducted, our findings and recommendations have been greatly enhanced by the suggestions and comments of these two committees.

* * * * * * *

We do not suggest that the proposed system of accounting for the costs of education is a complete answer to the problems facing our governments in the fair and equitable reimbursement to school districts for selected education expenditures. However, as professional accountants we are satisfied and confident that the system would be relatively simple and inexpensive to operate and would provide information, on a uniform basis, to overcome many of the inequities now existing in the reimbursement procedure.

While it was not an objective of the system to provide the state and local school districts with a management tool to improve the efficiency and efficacy of educational administration, we believe the adoption of proven cost accounting techniques, as demonstrated in this system, will give to those responsible to the public for the education of our children the means to monitor and control the costs of education. There are those who have criticized the proposed system because it will make too much information available to the non-academicians which might be misunderstood and lead to undesirable actions. We agree with the former -- that substantially more information will be made available; as to the latter -- we suggest that managers and administrators function on the basis of reliable information and that providing them with additional insights into the information now available should improve their decisions.

We are pleased to have had this opportunity to participate in this important project and offer our assistance in its future implementation.

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SECTION I

SUMMARY

This report demonstrates the operation of a proposed cost accounting system at a hypothetical school district. The objective of the report is to illustrate how the employment of such a system would be of benefit in determining fair and equitable means of reimbursing school districts for costs of educating the special child which are in excess of those required for the education of the normal child.

The approach and methodology selected to produce this report were discussed with federal and state representatives before work was begun. Several alternatives were carefully considered and the final selection represented a compromise which could fulfill the objectives of the study in the shortest period of time and at minimum cost. A discussion of the approach and methodology is presented in Section II beginning on page 12 of this report.

Before undertaking our work, we conducted a search of current literature and review of other projects dealing with the cost of education. This was done to eliminate any duplicate research efforts, as well as to incorporate in this study prior efforts in the subject of cost determination. A review of our literature search is included in Section V of this report starting on page 25.

A hypothetical school district, based upon the actual operations of several districts, was constructed in order that the cost accounting system could be demonstrated in many special situations not likely to be found in any single district. A complete description of the hypothetical district is set forth in Section XII of this report starting on page 101.

The cost system is based upon fundamental cost concepts which have been researched and studied by accountants for years. Because the term "cost" is not susceptible to definition, its use must be based upon sound accounting principles applied in the context in which the cost system is used. A discussion of the cost concepts underlying the system is set forth in Section III of this report beginning on page 15.

The need for a cost system which can relate the regular and special education cost efforts is becoming more evident as the trend today seems to be away from the normal kind of labeling of the special child into classes which meet their learning needs. A discussion of this need is presented in Section IV of this report on page 22.

The cost system described in this report involves the use of an EESEU, or Student Educational Unit, which is a time period during which the student is under the control and supervision of the school authorities. The elements of cost required to deliver each EESEU are identified and an amount is predetermined based upon the budget of the school district. An explanation of the EESEU concept is set forth in Section VI of this report starting on page 38.

Based upon the planning performed by teachers relating to the course content for students of the various grades, or for the special education to be delivered to designated students, the EESEU's describing the teachers' plans are accumulated into an educational curriculum to which is added the EESEU's representing non-teaching activities, such as recess, lunchroom, transportation, etc., all according to the school's plan. The complete curriculum then accounts for the entire planned time during which the student is under the jurisdiction of the school authorities. A discussion of the curriculum is set forth in Section VII beginning on page 52.

The EESEU and the resulting curriculum costs are predetermined amounts based upon the teaching plans and budget of the school. Utilizing cost accounting techniques which have been employed for many years in other areas of endeavor, the predetermined cost subsequently is compared with the actual results recorded in the school's regular financial statements. Differences between planned costs and actual expenditures are reported as "variances" according to the reason for which they occurred. The system of cost accounting does not replace or alter the financial accounting system, but is employed as an extension of the existing system. Illustrations of information generated by the system are included in Section ____ beginning on page ____ of this report.

The information provided by the system not only provides data for use in the reimbursement of specific educational efforts, but provides outputs which are useful in other administrative areas of the school, the district and the state and federal government. A discussion of the possible uses of the system is set forth in Section IX starting on page
this report.

The design of the cost system takes into consideration the benefits to be derived in comparison with the cost of implementing and operating the system. A much more comprehensive system could have been designed if, for example, it could have been assumed that all data would be computer based.

Obviously, while such a system might be most useful and efficient, it would eliminate its possible use from the majority of school districts employing manual accounting systems. The design of the system contemplated the use by the smallest of school districts at a minimal operating cost, but provides for the incorporation of more sophisticated data collection in the school districts which maintain the necessary mechanical or electromagnetic accounting equipment. The cost/benefit relationships and estimated implementation and operating costs are discussed in Section ____ of this report starting on page ____.

Should it be decided that this cost system has merit, the next step would be a field testing of the system at one or more school districts. There are important considerations in structuring the initial tests. These considerations are set forth in Section ____ beginning on page ____ of this report.

Finally, in a separately bound appendix there are examples of the material described in this report which should prove useful in a detailed study of the system.

SECTION II

APPROACH AND METHODOLOGY

There were two alternatives available by which the EESEU cost system could be demonstrated.

One alternative could have been the demonstration of the system on "live" data; that is, using the actual conditions existing within a single school district. This alternative would provide a "real life" demonstration of the capabilities of the system, but with several disadvantages that the other alternative could overcome.

The second alternative would be to "construct" a hypothetical district which could be made to include as many different educational situations as possible in order to demonstrate the ability of the system to deal with such varying conditions. On the other hand, the educational conditions described had to meet a test of plausibility within the context of the geographic and socioeconomic environment of the hypothetical district.

More importantly, the use of the hypothetical district enabled us to complete the study without being subject to the constraints of the school year. The use of "live data" might well have put the completion of the study into 1975.

In the course of discussing the approach of using the hypothetical model with the various advisory groups, concern was expressed that readers of the study might mistakenly accept the hypothetical district as a "model"; that is, something to be achieved, particularly with respect to the resultant financial and cost results.

We believe that the readers of this report will recognize that the financial information relating to a hypothetical school district represents nothing more than an illustration of cost flow and cost accumulation.

Further, that the system proposed in this report does not set norms or objectives to be achieved -- but rather it illustrates the ability to gather, synthesize and report on costs in any educational position.

The readers might keep in mind that the variables involved in the system are set by the local school board and its administration which in turn have a direct result on the amount of the reported accounting variance accounts. Each school district must decide for itself:

- the qualification levels for its teachers
- the salary scales for its teachers
- the maximum class size
- the curriculum

Uniformity between school districts will occur when state or federal laws govern the above mentioned areas and hence could be more readily compared in areas of commonality.

In the course of our discussions with advisory groups, there appeared to be expectations of the system which were not intended and are not present. It might be helpful to the reader to discuss them at the outset of the report as well as later a reiteration in the related areas:

- The system is designed to measure and report upon the cost of the delivery of specific time units of education in a quantitative sense. While the measurement of the quality of the education may well be of far greater importance to our educational process, this cost system is limited to reporting upon the quantity desired. It is believed, although no representation is made to this end, that the system could provide the framework for a system which would include elements of qualitative efforts.

- Since the purpose of this report is to illustrate how the cost system works, the financial and cost results of the hypothetical district should not be construed to represent norms, attainable results or any other demonstration of what should take place. The results are illustrative only of what data and in what form of reporting the operations of a school district might be described.

- The system proposed in this report does not represent a replacement of the present financial systems presently employed by the schools. Rather, it represents a supplement to present systems by adding cost accounting to the present financial accounting. It is based upon, and extensively uses, the chart of accounts prescribed in the Illinois Financial Accounting Manual and Handbook II, Financial Accounting for Local and State School Systems.

SECTION III

COST CONCEPTS

Perhaps the underlying problem in the search for a determination of "the cost of education" lies in the word cost. Much of the efforts, current and past, have dealt with the complex and complicated questions of education -- its content, its delivery and its results. There appears to be a belief that once these questions are answered or compromises agreed upon, that the calculation of the cost thereof would become a mechanical application.

Yet the term cost is not susceptible to definition. The problems faced by the academician in defining education are similarly found by the accountant in defining cost.

After considerable research by the staff of the Cost Accounting Standards Board (CASB), their conclusion with respect to cost in their glossary of cost accounting terms is:

> "Definition - No acceptable definition for cost accounting purposes"

In the research of the CASB staff, it is pointed out that cost does have a certain meaning in financial accounting. For example, Accounting Terminology Bulletin No. 4 of the American Institute of Certified Public Accountants (AICPA) defines cost as.

> "Cost is the amount, measured in money, of cash expended or other property transferred, capital stock issued, services performed, or a liability

> incurred in consideration of goods or services received or to be received."

The CASB staff study concludes with:

> "It must be stressed that in financial accounting the term 'cost' is associated with a specific item (asset) or with a transaction. It is not a periodic concept.
>
> "If an attempt is made to define the usage of the term not only in financial accounting, but also in cost accounting and in economics, a multitude of interpretations emerges. And as Vatter has pointed out in his report on Standards for Cost Analysis, 'there is no single and simple definition of cost which will serve for all interactions and uses.'
>
> "Therefore, if use of the term 'cost' is contemplated outside a financial accounting framework, it is always advisable to add a qualifying adjective to the basic term so as to improve the precision of the expression in any given context."

For some years now, the "cost of education" has been accounted for and reported to the public as so many dollars per year per student. In effect this alleged cost per student represents nothing more than the expenditures of the school (or district) divided by the average daily attendance of students at that school (or district) over a period of time, usually one school year. The resulting figure has little meaning, except perhaps to indicate trends within a given school (or district); comparisons between schools are meaningless.

The problem of defining what constitutes one year of education is discussed in the section of this report dealing with EESEU's and with Curriculum.

While the term cost does not seem to be susceptible to definition, specific types of cost are definable. Terms such as standard cost, job costs, incremental costs, incurred costs, etc., do have meaning and definition in the practice of cost accounting. In developing the system described in this report, we have employed a "planned cost", similar to the "standard cost" which have generally been applied in the industrial world for the past fifty years. Standard costs have been used in reference to tangible products or clearly defined and unchanging services. They generally are engineering based; that is, they employ scientific measure of predetermining the material, labor and overhead necessary to complete the prescribed tasks to bring the product or service to a usable or salable state.

Because education, like medicine, involves the delivery of services that cannot be engineered with the preciseness of commercial products, standard costs cannot be adopte to professional services.

On the other hand, professionals do plan their work drawing upon experience, training and education to prescribe the service necessary to accomplish their goals. Necessarily their plans must be drawn in such a fashion as to permit maximum flexibility in the delivery, but always with a sense of order and purpose.

Consequently, in this study we have developed a "planned cost" -- similar in its functioning in an accounting sense to the standard cost -- but different in its construction from that of the engineered standard cost.

Planned costs have been employed in the administration of education for many years. Such costs are manifested in the annual budget prepared for virtually every public school in the country. These budgets are prepared with varying details -- some with estimations of each type of experience to be incurred.

The budgets are reported in total dollars, sometimes broken down in detailed estimates for each account of income and expense. As incurred dollars are subsequently matched with the budget estimates, differences are explained by analysis of estimates in the budget compared with the incurred dollar. The explanation is only as good as the analysis and, because it follows no accounting discipline, can be as informative as the analyst chooses.

The cost concepts of this study in effect formalize the planners budget within the constraints of systematic accounting techniques and through the use of proven cost accounting procedures. The cost system described provides an on-going analysis of that which is planned with that which is expended. This concept permits the cost system to supplement and complement the existing financial system and does not in itself constitute a separate accounting system.

Simply stated, the system suggested in this report begins with the educational planners' estimates for the coming period and organizes each estimate into its components of units and price. The sum of the units times price equals the planned expenditures for the period.

As expenditures are incurred and accounted for in the financial records in terms of total dollars, the cost accounting records retain the unit-price relationship of each expended dollar.

Thus at the end of any reporting period an accounting can be made not only of the total difference or variation between planned expenditures and increased expenditures, but, further, whether such variations occurred as a result of a difference in the units of education planned to have been delivered versus the units actually delivered, and/or as a result of the difference in the price estimated to be paid for a unit versus the actual price paid. In practice, these variations of unit and price are developed within the system in terms of the cause for each variation. For example, the units of education which were planned to have been delivered might vary because of a change in enrollment, student absence, or a change in the planned curriculum; or, prices to be paid for teachers' salaries, equipment or supply purchases, or administration services might vary because of substitutions and inflation.

The resulting differences between that which is planned and that which actually takes place are reported within the cost accounting system as "variances." These cost variances may be plus or minus (i.e. the actual costs related to the planned costs).

There is a common misunderstanding that cost variances are either good or bad. This is not the case -- cost variances merely reflect what has happened and provide a measurement of the occurence from that which had been contemplated.

For example, a new school may have been constructed to accommodate 300 pupils. The planned capacity of the school might have been determined by estimating the future need of the District and at the time of enrollment only 200 pupils were enrolled. Further, because of absences, the average daily attendance was but 175 pupils. Under the planned cost system proposed in this study, the total expenditures for the school would be stated in these amounts:

- the cost to educate the pupil
- the cost (variance) to maintain and operate the facility for the 100 pupils which the school was capable of serving, but who were not available. (In a sense a very proper cost resulting from a planning decision.)
- the cost (variance) to operate to service the 25 pupils absent from the school. (In a sense a loss resulting through no failure on the part of school authorities, but nevertheless a cost incurred for which no education was delivered.)

The experienced cost accountants should not find the concepts described are different from those they have been following for some years. The matching of predetermined costs with incurred costs and an accounting for the variation has been successfully employed for decades. The terminology is necessarily different, and for convenience the terms used in this study might be compared with the more conventional cost accounting terms as follows:

EESEU = cost operation
Pupil = cost objective
Classroom = cost center
School = organizational segment
EESEUR - standard rate
EESEUW - standard cost
Curriculum = engineering specifications
Teaching schedule = route sheet
Requisition = bill of material

In summary, the concepts of cost employed in this study do differ from those previously employed in the determination of a "cost of education," but the concepts do not differ from the concepts employed in modern day cost accounting. Further, the cost concepts underlying the system described in this report do not require a change in the financial accounting procedures recommended for use by school districts, but provide a supplement to the information now being provided the school, the district, and the government.

SECTION IV

ADVANTAGES OF STANDARD COST SYSTEMS IN SPECIAL EDUCATION

Typically, indices relating the relative cost of special vs. regular education are developed on the basis of medians or averages. Using this approach, half of the cases reported are either above or below the reported index figure. If such an index is used as the basis for reimbursement in a state, severe discrepancies may develop. Further, the index basis of reporting may reflect inefficiencies either in regular or special education. For instance, assuming that regular education was run inefficiently as compared to special education, the index figure would unjustly penalize special education. Obviously, the opposite could also be true. Indices do not reflect geographical differences of delivery costs directly, whereas such differences can be identified with a standard cost system.

Further, programs may vary significantly in cost due to peculiarities of pupil-teacher ratios, transportation, and salary costs, but with an index it is impossible to identify which is the causative factor.

We currently seem to be experiencing a change of direction in special education within the United States in terms of labeling as it applies to special education. The current trend seems to be away from today's kind of labeling, such as emotionally disturbed, retarded, and so forth, and to put special children into classes which meet their learning needs, such as language acquisition classes (which might include emotionally disturbed, partially sighted, deaf children). If this trend should become more prevalent, a need will develop to categorize the costs and expenditures along learning lines, rather than disability lines. The standard cost system embodied in this report lends itself to categorization along learning needs and could deliver such cost data on demand.

An unanticipated potential advantage of the cost system described herein is that it may be coupled with evaluation techniques developed by educators to arrive at "cost-effectiveness" kinds of decisions. The cost system by itself does not purport to accomplish this, but several educators who have provided us with teaching advice have been optimistic about this possibility becoming reality subsequent to the field testing of the cost concept.

Perhaps the greatest "long-run" advantage of utilizing a standard cost system would be that of facilitating "cost effectiveness" decisions on the part of educators relative to alternative educational programs. For instance, a standard cost system would enable educators to develop the cost of an actual educational program, as well as the cost for an alternative program which does not currently exist (let's say a program using reading machines versus one not using these devices). Thus the standard cost system would provide the "cost" input of the cost effectiveness decision, with the educators providing the professional judgment as to the "effectiveness" of the two programs. A similar advantage resulting from the use of a standard cost system would be in terms of comparison between schools within a district and even between districts, assuming that curricula, salary schedules and other related costs are similar if not identical. Such comparisons would enable administrators to make cost-effectiveness decisions by observing the standard costs attached to alternative programs in various schools or districts as compared with the effectiveness of these programs.

Even without considering the foregoing advantages to local school administrators, the spectre of cost-accountability system is looming in the educational future as evidenced by cost-type legislation that has been introduced on both the Federal and State levels of the most recent years. History indicates that cost accounting legislation has been placed on public interest segments of our economy, such as utilities, public transportation, and health care. Educators realize that their "industry" represents the largest single portion of the American Gross National Product and that such a large and ever-growing expenditure of public funds requires constantly improving management techniques. The adoption of the cost system outlined in this report represents the potential of a powerful tool to improve the "management of education" and to possibly preclude the necessity of legislated control.

SECTION V

LITERATURE SEARCH - EDUCATIONAL COST SYSTEMS

General Research

After initial discussions with the Governor's Office of Human Resources, time was committed to the conduct of a preliminary literature search. The purpose of this research was to determine the general state of the art of cost techniques utilized in both regular and special education. (References are included in the Bibliography presented in the Appendix.) In addition, informative discussions were conducted with Ernst & Ernst Staff who serve numerous school districts in the capacity as certified public accountant's; with knowledgeable educators both within and outside the State of Illinois through arrangements made by the Governor's Office of Human Resources; and, with representatives of the Bureau of the Educationally Handicapped, United States Office of Education.

The result of this preliminary research was the conclusion that none of the techniques utilized were adequate to reflect the cost of education in the professional accounting sense. In both regular and special education, major emphasis was directed toward reimbursement actions or formulas with the validity of the cost basis of such actions receiving only secondary attention, if any.

For regular education, the dominant reimbursement procedure was found to be based upon an amount of dollars per student. On examination, this item, dollars per student, allegedly represented the cost of education, although in reality the amount computed was merely an average of expenditures. This average was determined by dividing expenditures by either average daily membership or average daily attendance. Furthermore, the composition of the expenditure total was subject to considerable variation among the different jurisdictions.

For special education, no dominant reimbursement procedure was identified; instead, emphasis appeared to be concentrated toward obtaining greater fiscal support through a variety of reimbursement procedures having, in general, limited relation to the cost of educating handicapped children. At least six categories of reimbursement procedures were identified and these are discussed in a following section.

In view of these conditions, Ernst & Ernst concurred with the Governor's Office of Human Resources that there existed a fundamental need for the development of a basic cost accounting technique which was as applicable to regular education as to special education, which could be utilized among all jurisdictions, and which represented technical integrity from the standpoint of the accounting profession.

Subsequent to grant application acceptance by the United States Office of Education and contract award by the State of Illinois to Ernst & Ernst, additional research was conducted. These references are included in the Bibliography. In addition, one of the tasks in the approved study required that research contact be directed toward four other projects (thought to be related to this study) as follows:

Santa Cruz - Title 6 Study
Common Care Data Study - Mathematica
National Education Finance Study - Rossmiller
University of Illinois - Sorenson Doctoral Dissertation

Research contact was established with both the Santa Cruz and the Mathematica projects to learn of their work on curricula development. It was anticipated that one or the other was in the process of establishing a basic curriculum, supported by detailed lesson plan guides, for each of the major categories of handicap. Information received during these contacts clearly indicated that the nature of these projects would not provide the type of narrative detail of curricula required as input for illustrating the Ernst & Ernst Student Educational Unit. The remaining two projects are treated in a subsequent section.

Nature of Financial Assistance - Special Education

As previously stated, research indicates that greater emphasis is placed on reimbursement procedures than on determining the cost of special education. While these reimbursement procedures vary by state, there appears to be six general types of reimbursement approaches. Although cost is stated as the basis in several of the reimbursement procedures, in reality the term cost is used to mean expenditure rather than cost in the context of this study. The six general types of reimbursement approaches follow:

- Straight Sum - This approach provides a flat amount of dollars per handicapped child; however, this flat amount may vary according to handicap.
- Special Staff Allowance - This approach is similar to the straight sum method except the allowance relates to the number and kind of special staff required, that is, an allowance is granted for each special teacher, professional

worker, administrator, etc.

- Unit System - This approach provides an amount of dollars for each designated unit of classroom instruction, administration, and transportation. Limitations on annual program growth may be included in the procedure and prorating of funds is generally prohibited.
- Excess Cost - This approach requires a determination of the difference or excess amount between the cost of regular education and the cost of special education in a particular district. Again, cost may more properly be defined as the sum of specified expenditures the composition of which varies among the state using this approach. Once the difference or excess is known, this excess becomes the base for application of the reimbursement formula. Reimbursement limitations range from no express limits to very specific dollar maximums.
- Percentage Reimbursement - This approach involves a formula for reimbursing on a percentage basis full or partial costs of educating the handicapped child. Again, cost means expenditures, the composition of which may vary among the states using this approach.
- Index System - This approach multiplies the per student expenditure for regular education by an index number, which may vary by handicap. The composition of per student expenditure is subject to considerable variation.

Analysis of these six reimbursement approaches for special education clearly indicates that none of them depend upon a determination of cost, as the term cost is meaningful from an accounting viewpoint. In fact, three of these approaches, the straight sum, the special staff allowance and the unit system, can only be viewed as purely arbitrary methods of funds allocation. The remaining approaches, excess cost, percentage reimbursement and index system, while not based on an acceptable modern cost accounting technique, do appear less arbitrary in basing reimbursement on expenditures as inadequate as is such an approach for financial accounting cost purposes.

Cost Determination

General Approach:

Education, like most services of government, has long been delivered under archaic financial concepts revolving around revenues and expenditures. In the traditional budgetary process, decisions with respect to next year's budget are based largely on the level of current expenditures; increases are contingent on how much the governing body feels revenues can be expected to increase. Intense competition from all of the various governmental entities for available funds may force the allocating authority to give only lip service to needs.

The traditional budgetary structure does not provide either the elected official or agency administrator with the kind of information needed to effectively plan and allocate resources or to accomplish the day-to-day job of managing the complex business of education. The traditional line item budget only appears to provide an orderly and seemingly objective approach to financial planning and control. In too many instances, all it really provides is a uniform framework for establishing and maintaining a set of orderly records which comply with legal requirements, but which provide very little in the way of useful management information.

The cost of education has come to be expressed as so many dollars per year per student - an amount that represents nothing more than an average of expenditures for the school or district over a period of a year. Even this average is not consistently derived among the several state jurisdictions. The composition of the expenditures summed for the school or district vary considerable among the states. Many jurisdictions permit considerable flexibility to the local administration in determining the classification of expense items and the transfer of funds among the three or four general categories of accounts. In addition, this average expenditure per student may be derived by using two widely varying divisors, average daily attendance or average daily enrollment. The difference in results can be significant and oftentimes confusing.

Under such a limited budgetary system, it is impossible to place the district's needs and programs in proper perspective or to establish any sensible system of national priorities between programs. The missing ingredient is the inability of the system to provide detail cost data on the various elements that constitute the numerous programs involved in the delivery and support of the educational processes.

Although concentrated effort is now committed to arrive at a better method for determining cost of education, the general approach continues as one that expressed this cost in terms of average expenditure per student per year.

Informal Analyses:

During the preliminary research prior to submission of the grant application and after commencing the project -- comments from various school administrative personnel were heard about such administrators' attempts to reorganize the statutory financial data into more useful form for management planning, assessment and control purposes. All seemed to be faced with the same major problems -- how to determine what line item expenditure classification had an impact on the particular topic under study and how to take this line item gross expenditure amount and properly distribute or allocate a portion of this amount to such specific topic.

A further consensus indicated the need for a system that would record data at the time data originated and for all of the various program elements involved in the educational process.

New Approaches:

The two remaining projects requiring research contact, the National Education Finance Project - Rossmiller and the University of Illinois - Sorenson Doctoral Dissertation, are both treated in this section. In addition, Planning-Programming-Budgeting Systems is briefly discussed as a new technique for education management.

- National Education Finance Project - This study, which appears to be the first of its kind and scope in over a quarter century reflected the immense concern of the federal government in developing more meaningful cost techniques for education. While this Project included a series of studies, the specific one for research contact in this study is that dealing with the per student cost differentials between special and regular education. This particular phase of the Project is familiarly known as the Rossmiller Study, the name by which it will be referred in the following comments.

The Rossmiller Study included selected school systems in five states: California, Florida, New York, Texas and Wisconsin. These states and the specific school systems selected were judged by a group of recognized special educators as providing reasonably comprehensive special education programs, thus assuring that programs for all categories of handicapped children would be included in the data base. In addition, consideration of size and varying social, economic and demographic characteristics influenced the selection of individual school systems. The final sample included twenty-four school districts. After selection of the school district participants, data collection forms were utilized to obtain the comprehensive statistics on expenditures by program for both special and regular education as well as student inventory on an average daily membership basis. Per student expenditures were calculated on the basis of several assumptions: 1) the expenditure component applied to all students on an equal basis, 2) expenditure components applied separately to regular and special programs, 3) a basic expenditure component applied to all students but expenditures for special programs had to be added to the per student regular expenditure to arrive at that component's total average expenditure for the particular special program concerned.

Expenditure component averages per student were then summed for both the regular education programs and for each category of handicap (special program) for each school district. Ratios were then calculated for each district by dividing the average expenditure per student for each special program by the average expenditure per student in the regular program. Low, median and high ratios were then generated for each special program based on the results of the total sample of twenty-four districts. The Rossmiller Study suggests the median ratios be used as the basis for costing special education programs in relation to regular programs. The major drawback in this technique is the fact that the assumptions made are after the fact attempts to determine detail of expenditures, program content may vary considerable from that examined, and the ratios are based upon a unit of measurement -- expenditure/price -- which is inherently variable. This latter problem is the most serious as the prices in two different districts for reasonably identical programs can be so varied that a ratio based upon such prices is meaningless as a standard.

- University of Illinois - Sorenson Doctoral Dissertation - This dissertation presented an analysis of expenditures per student for special education programs in seven selected special education systems in the State of Illinois. In addition, the quantitative effect of the state special education reimbursement on the per student expenditures by program was examined. Expenditures for capital outlay and transportation were excluded from the analysis. This analysis suffers from the same problems as the Rossmiller Study.
- Planning-Programming-Budgeting Systems - This technique while not new in concept has not apparently been adopted by many school districts. Although PPBS received its current emphasis when introduced into the Department of Defense in 1961, the concept of program budgeting can be traced back to the year 1912 when President Taft's Commission on Economy and Efficiency in Government recommended adoption of a program budget for the federal government.

All too often, financial management in public affairs is concerned with "this is where we are, where do we go from here?" The PPBS approach requires first the establishment and definition of planning and budgetary goals in terms of "where do we want to go and what do we do to get there?" The two P's in PPBS are significant. First, it is to plan and second to develop a program to achieve the plan. With these two elements as a foundation, one can develop a budgetary and accounting system which is responsive to the agency's particular needs. Inherent in such an approach are the requirements for cost effective accounting and sophisticated systems reporting. PPBS is not a simple process but it can be accomplished if interest really exists and if the problems are approached on the proper basis.

Private industry, for some years, has been using basic concepts involved in program budgeting including:

1. establishing goals, objectives and program budgeting
2. cost effective accounting, and
3. sophisticated reporting systems.

For example, the first step in developing a PPB System for a school district is to define educational goals and objectives. This is a job for the professional educator. Goals such as "it is the school district's objective to provide every child with a good education" are not acceptable. Educational goals must be specific and quantifiable. A specific goal would be to increase a child's proficiency in a subject from one level to another over a specified period of time. Accomplishment in this case can be tested.

To attain this goal it is necessary to identify or develop specific educational programs structured to provide the desired level of proficiency within the desired time.

The budgetary process then involves determining how many children will be given instruction. This is the level of demand. Developing total program costs will involve determining:

1. How many instructors are needed?
2. How many classrooms will be required?
3. What supporting equipment, supplies and books will be needed?
4. The magnitude of maintenance, facility and other costs related to the program?

These costs can be summarized to determine per pupil costs associated with achieving desired proficiency levels. By following this process for all programs and implementing a method for ranking alternatives, the framework necessary for PPBS will be created. Not only will an effective basic budgetary process be developed, but a means will be established for evaluating programs and placing them in an overall understandable perspective to both taxpayers and school district management. A better means for allocating and managing resources will have been developed.

Also, the agency will be provided with a means for making better evaluations of primary and alternative programs through the use of sophisticated analytical techniques. Here is, perhaps an extreme example. One school district decided that their technical school should train computer programmers for which a high demand exists. To train programmers requires that a computer be available, so the school district purchased one.

A hundred programmers were trained during the initial year. Needless to say the computer sat idle most of the time. Subsequent analysis of the school district's various programs revealed that this educational program was costing the district thousands of dollars per year per pupil as a result of the large capital investment in the expensive computer.

Analysis of alternatives revealed that the needed computer time could be obtained from a local service bureau at a fraction of the cost of owning the equipment. While this might seem like the kind of situation which could not occur in your agency or which does not require sophisticated systems analysis to solve, it was only through the introduction of basic PPBS concepts and the evaluation of alternatives that the problem was identified and the excess costs eliminated. As previously stated, a cost effective accounting technique must be an integral part of such an approach. Perhaps the absence of modern cost accounting techniques to education generally, explains the failure of PPB System from more widespread adoption.

It is significant to note that the cost accounting technique developed in this present study, the EESEU, and which methodology is explained through a cost model is the cost accounting technique that would need be used for adoption of the PPBS concept.

SECTION VI

THE STUDENT EDUCATIONAL UNIT (EESEU)

Recognizing the weaknesses in prior attempts to define and quantify the costs of education as discussed in the "Cost Concepts" section of this report, the system suggested in this report addresses all components of education in terms of two distinct measures - units of service and price. Total cost then is developed by summing the extensions of the number of units of service delivered times their respective prices. Said another way, costs are incurred as a function or result of the delivery of units of service.

The unit-cost concept is useful as a communication tool and planning device since it expresses costs as they are best understood, i.e., there is an express cost associated with each unit of service delivered. Unit-costs then become a useful device for the planner. For example, if all activities associated with education are defined in terms of their units of service and price components, the cost implications of rearranging the various activities that might be combined to form a curriculum for a grade level, school level, etc., may be readily identified.

In addition, the unit cost concept is helpful in terms of assessing results actually achieved. Through the existing financial records expenditures are recorded in dollars as they are incurred, whereas the supplementary cost accounting system records the units and prices of these expenditures. Through the use of these cost accounting records, departures or variances from planned levels of expenditures may be explained both in terms of units of service planned to be delivered versus those actually delivered and the price estimated to be paid for a unit versus the price acutally paid.

Obviously if the unit-cost concept is to be applied to education, the activities involved in the educational process must be defined in terms of units of service to which prices can be related. The unit of service measure developed as a result of this study, the Ernst & Ernst Student Educational Unit (EESEU), defines the unit of service as a ten minute time period. The EESEU defines each unique educational activity, then, in terms of the unit of service, as a ten minute time period, and the components of cost associated with delivering that ten minute time period to one child.

Costs are then developed as a function of the delivery of specified types and amounts of ten minute time periods of education to the child.

In order for the system to become operative,unique educational activities must be defined. For purposes of this report, these activities, were defined from the standpoint of the child, identifying each unique unit of service delivered to the child during his year in schoool. For purposes of demonstration in our report, these definitions were developed respecting various grade and age levels, in what would be considered a traditional educational curriculum. For a child at a particular grade level, there are only a limited number of educational activities that may be defined such as arithmetic, reading, etc.; however, a number of the same kind of units would be delivered to that child during the year. The selection of ESSEU's planned for a child in a given grade level is expressed in terms of the curriculum which states both the types of EESEU's and the number of ESSEU's to be delivered during the year.

In order to assign or allocate various costs to the units of service delivered, the units of service must have an element of commonality in terms of their description. This commonality is provided, if all units of services are defined in terms of common units of time. In this way each unique activity comprising the curriculum can be quantified in terms of the units of time involved.

A number of alternatives are apparent in terms of the unit of time selected. For example, if the unit of time selected is a minute, all the activities involved in the curriculum could be defined in terms of quantities of minutes involved. Likewise, the interval of time could be a day. Very few of the activities involved, however, would be of an entire day's duration. Therefore, this unit of time would be rather difficult to work with, since only fractions of days could be attributed to certain activities. A ten minute time period seemed to be a reasonable compromise. Most activities could be described or specified in terms of the number of ten minute time periods involved without dealing in fractions, as would be required with a measure of days or hours. On the other hand, a ten minute time period is not as burdensome to work with, in terms of clerical effort, as, say, a five or one minute time period. Therefore, the ten minute time period was selected as the basis upon which units of service would be specified.

To facilitate the definition of each EESEU, a two part form has been developed. The front portion of the form is illustrated in Figure ___.

Items of information that are required in order to properly define each EESEU are stated on the form. The various activities described by the EESEU's can generally be grouped into three categories in order to facilitate definition. The first category is "instructional", activities which would include such instructional activities as reading, arithmetic, social studies and other instructional activities as they occur through the year. The second category of activities are "holding" activities which involve the supervision of the child, but not instruction. Examples of holding activities would be recess or traffic. The remaining category of activities are "service" activities which involve the delivery of a service to the child such as transportation or lunch. Grouping EESEU's into these three categories facilitates the development of predetermined ESSEU costs as will be described later in the report.

For each EESEU that is defined, it is necessary to describe the components required to deliver the service. A listing of necessary equipment, textbooks, and consumable supplies required; a statement of the type of facility required, such as a classroom, gymnasium or lunchroom; a record of the personnel required to deliver the EESEU for example, a bus driver; teacher's aide, or the minimum level of education and experience required of the teacher; and a statement of the capacity of the EESEU in terms of the optimum number of students to which the EESEU should be delivered, must all be recorded on the EESEU card. These information requirements must be provided for each EESEU and are necessary in order for the bookkeeper to develop predetermined EESEU costs or rates. It should also be noted that the budgeting process in existence in most school systems already requires that this type of information be submitted for consideration in the annual budgeting process.

Since the listing of certain materials and textbook requirements may become rather lengthy for certain EESEU's, supplementary listings may be attached to the EESEU cards.

As a result, each unique type of service delivered in the educational process will be defined to include a description of the service, a statement of the equipment, textbooks and supplies required to deliver the service and a statement of the facility needs personnel requirements, and student capacity. In addition, provision has been made to state the total rate or cost for each EESEU.

The back portion of the EESEU card, as illustrated in Figure ____ provides additional detail in terms of the components comprising the total EESEU rate stated on the front of the card.

These component rates allow the information provided on the front of the card to be assembled in an orderly fashion and converted into cost rates by someone, such as the bookkeeper who is not actually involved in the delivery of the EESEU.

The total rate per EESEU is comprised of four component rates identified as the primary, secondary, tertiary and quaternary rates. These component rates have been developed in order to associate specific kinds of costs necessary to the delivery of each EESEU, recognizing that different types of costs are assigned or allocated on varying bases. The total ESSEU rate represents the total costs of delivering a ten minute period of education to one child and is equal to the sum of the component primary, secondary, tertiary and quaternary rates.

The primary rate for each EESEU is defined as the cost of the primary person in charge who is required for the delivery of that particular EESEU as stated on the front of the card. Since only one person is in charge of any given activity, the primary rate always involves the cost of a single person - the person in charge, whether it is a teacher, teacher's aide, bus driver, etc. The costs of supplementary personnel in addition to the primary person in charge are considered elsewhere.

The secondary rate for each EESEU is defined as the cost of personnel required other than the primary person in charge, and the books, equipment and consumable supplies required in the delivery of the EESEU as stated on the front of the card. The EESEU card provides for each component rate; personnel, books, equipment, and consumable supplies to be stated separately. This is necessary in order to facilitate computation of the secondary rates, in order to permit detailed cost comparisons among EESEU's, and in order to permit the computation of certain variances.

In addition to providing component secondary rates for other personnel, books, equipment and consumable supply requirements, the system allows for a distinction between those secondary costs which are directly assigned to an EESEU as compared to those that must be allocated. Other personnel, books, equipment and consumable supply requirements that can be directly associated with a particular EESEU are defined as assigned secondary costs. In addition certain personnel, equipment, consumable supplies and books can only be indirectly associated with the delivery of a particular EESEU. In other words certain personnel, equipment, consumable supplies and books may benefit more than one EESEU. In these situations secondary costs must be allocated or pro-rated to the benefiting EESEU's. These costs are identified on the ESSEU card as allocated secondary rates for personnel, books, equipment and consumable supplies.

Examples of secondary costs would include the cost of a teacher's aide who assists in the grading of papers and other activities for a number of different classrooms or grade levels, reference books placed in the classroom such as encyclopedias and dictionaries which would benefit more than one instructional EESEU, items of equipment such as movie projectors and tape recorders which would benefit a variety of instructional EESEU's, and miscellaneous consumable supplies such as pencils, paperclips, paper and erasers.

The tertiary rate developed for each ESSEU represents the administrative costs related to the delivery of a particular unit of education. Examples of these kinds of costs would include the salaries of district-wide personnel such as the superintendent, assistant superintendents and other district-wide administration personnel. The tertiary rate also includes administration costs at the individual school level such as the salaries of principals, curriculum consultants or supervisors, secretaries and clerks, librarians and health services; along with certain items of cost such as travel, tuition, office supplies and miscellaneous items that cannot be specifically associated with a specific ESSEU. These items of cost are then allocated or pro-rated to all ESSEU's in order to develop the tertiary rate.

The final cost component, the quaternary rate, represents certain items of occupancy cost related to each EESEU.

Examples of these kinds of costs include salaries paid to district-wide operations and maintenance personnel and district-wide expenditures for operations and maintenance, contractual services, supplies, heating and utilities. In addition occupancy costs at the individual school level must be included such as school operations and maintenance expense, contractual services, supplies, heating and utilities. These items of cost are allocated or pro-rated to all EESEU's in order to develop the quaternary rate.

Thus far the concept of the EESEU, the information requirements and the EESEU cost rates have been defined and discussed. The development of the component EESEU rates will now be discussed in more detail.

As discussed previously the primary rate for each EESEU represents the cost of the primary person in charge of the EESEU. This personnel requirement is expressed on the front of the EESEU card in terms of the minimum experience and education level requirement of the primary person in charge. The primary rate is developed and computed as follows:

$$\text{Primary EESEU Rate} = \frac{\text{Salary}}{\text{Available Time}} \div \text{Student Capacity} \times \text{Sick leave Allowance}$$

Where:

Salary = salary for the minimum level of education and experience required of the primary person in charge of the particular EESEU.

Available time = Standard number of ten minute time periods available for the delivery of EESEU's for the primary person in charge of the EESEU.

Student Capacity = Student capacity of the EESEU as stated on the EESEU card.

$$\text{Sick Leave Allowance} = \frac{\text{Number of Days in School Year} + \text{Sick days Allowed in School Year}}{\text{Number of Days in School Year}}$$

Since the salary for the minimum level of education and experience required of the primary person in charge of the EESEU and the standard number of ten minute time periods available of each person for the delivery of ESSEU are generally the same for all ESSEU's, a table can be constructed relating the salary rate per ten minute time period to various class sizes or student capacities, Figure _____. The primary rate for each ESSEU can then be extracted from the table simply by looking up the student capacity of the particular EESEU.

It should be noted that in the development of the primary rate - teacher's time expended for planning and administrative activities was not considered directly. Rather, the salary cost is assigned to a particular EESEU on the basis of the number of ten-minute time periods the teacher is expected to deliver (face to face contact) to the students. In this way, the teacher's planning time and administrative time is pro-rated to all EESEU's. As an alternative, separate rates could be established for teaching activities and planning and administrative activities. The cost of these planning and administrative activities would still have to be allocated to the benefiting EESEU's. Therefore, the procedure selected is simpler and accomplishes the end objective.

Secondary rates are developed based on predetermined secondary costs for each EESEU. The personnel, equipment, book and consumable supply requirements for each EESEU are stated on the EESEU. These requirements must be priced out, by the bookkeeper using vendor's catalogs, and preparing the respective purchase orders, as is customary during the budget cycle.

Next, these secondary costs must be categorized as to personnel, supplies, equipment and books considering whether each item can be directly assigned to the EESEU or allocated to a number of benefitting EESEU's. This process can be facilitated by using the budget forms already in existence at most school systems as illustrated in Exhibit _____.

After all secondary costs for a particular EESEU have been categorized the respective rates are determined as follows:

$$\text{Personnel - Assigned} = \frac{\text{Salary for minimum level of education and experienced required for the EESEU}}{\text{Standard number of ten minute time periods available for the delivery of EESEU's.}} \div \text{Student Capacity of the EESEU}$$

Textbooks - Assigned = Textbook cost required for delivery of the EESEU

÷ Average useful life of the textbook

÷ Student capacity of the EESEU

÷ Number of EESEU's to be delivered

Equipment - Assigned = Cost of the equipment required for delivery of the EESEU

÷ Average useful life of the equipment

÷ Student capacity of the EESEU

÷ Number of EESEU's to be delivered

Consumable Supplies - Assigned = Cost of the workbooks and supplies required for delivery of the EESEU

÷ Student capacity of the EESEU

÷ Number of EESEU's to be delivered

In addition to the secondary costs of personnel, equipment supplies and textbooks that can be *directly* identified and associated with each EESEU, other personnel, equipment, supplies and textbooks can only be *indirectly* associated with the delivery of a particular EESEU.

These costs benefit a number of EESEU's and must be allocated or pro-rated over the EESEU's benefited. These costs are identified as *allocated* secondary costs and, therefore, allocated secondary rates are developed for allocated secondary personnel, books, equipment and consumable supplies.

The allocated secondary rates are developed similarly to the assigned secondary rates except that the denominator becomes total number of benefitting EESEU's to be delivered rather than number of EESEU's to be delivered of a single type.

Personnel - Allocated = Salary for minimum level of education and experience required for the EESEU
÷ Standard number of ten minute time periods available for the delivery of ESSEU's
÷ Average student capacity of the benefitting EESEU's

Textbooks - Allocated = Cost of allocated textbooks
÷ Average useful life
÷ Average student capacity of benefitting EESEU's
÷ Number of benefitting EESEU's to be delivered

Equipment - Allocated = Cost of allocated equipment
÷ Average useful life
÷ Average student capacity of benefitting ESSEU's
÷ Number of benefitting EESEU's to be delivered.

After the secondary rates have been determined they are posted to the respective EESEU cards.

The next category of costs that must be developed is administration. The tertiary rate is developed based upon budgets of administration expenses for both the district level and the individual school level. These budgets have been prepared, as illustrated in Exhibit _____.

The central office budget is first prepared including budgeted items of administrative expense such as administration salaries, contractual services, supplies, travel insurance and fringe benefits. These budgeted items are first segregated as to those that benefit special education programs only versus all education programs. These budgeted items are then divided by the system-wide EESEU capacity, as determined in Exhibit _____, to yield individual central office tertiary rates by natural expense category as illustrated in Exhibit ____. Central office administration expense is then allocated to each of the schools based on the ESSEU capacity of each school as illustrated in Exhibit ____. In addition administrative expense budgets are developed for each of the schools to include administrative salaries, supplies, travel and health. Again component tertiary rates are developed for each natural expense category, as illustrated in Exhibit ___ by dividing the amount of each category by the EESEU capacity of the school respecting the differences between special and regular education. The sum of th component tertiary rates by natural expense category is equal to the tertiary rates for all EESEU's within that school respecting special education versus regular education as illustrated in Exhibit ________.

In the development of these tertiary rates it has been demonstrated that unique rates may be developed for each school. In addition the rates developed for each school respect administrative costs differences between special and regular education programs. Although other methodologies may be employed to allocate various items of administration to the respective EESEU's, the methodology employed here is simple to employ and captures significant administrative cost differences between special and regular education programs and the differences of administrative costs among specific schools and school systems. Therefore, subject to field testing, the methodology as presented, appears to be the most reasonable and workable.

The final cost component, the quaternary rate, represents certain items of occupancy cost related to each EESEU and is developed in much the same manner as the tertiery rate. The central office occupancy cost budget is first prepared including budgeted items of operation and maintenance salaries, contractual services, supplies, heating, utilities, and depreciation as illustrated in Exhibit ____. These budgeted items may be segrated as to those that benefit special education versus those that benefit all programs, if there is a distinction. Those budgeted items are then divided by the system-wide EESEU capacity to yield individual central office quaternary rates by natural expense category as illustrated in Exhibit ______.

Central office occupancy expense is then allocated to each of the schools based on the EESEU capacity of each school as illustrated in Exhibit ____. In addition to the central office allocation, occupancy cost budgets are developed for each of the schools to include operation and maintenance salaries, contractual supplies, heating, utilities and depreciation as illustrated in Exhibit ______. Component quaternary rates are then computed for each natural expense category budgeted for the school, as illustrated in the Exhibit ______, by dividing the amount of each category by the EESEU capacity of the school respecting the differences between special and regular education. The sum of the component quaternary rates by natural expense category is equal to the quaternary rates for all EESEU's to be delivered within the school as illustrated in Exhibit ______.

In the development of the quaternary rates debt service requirements have been excluded. Instead the concept of depreciation has been established in order to recognize the depletion of buildings and fixed equipment on a uniform basis, rather than recognizing cost on the basis of debt service contracts which may not bear any relationship to the consumption of the asset from an economic sense. For older schools, where historical cost records are not available, historical costs may be approximated recognizing the geographical location and size of the building and applying a construction index representative of construction costs at the time the building was erected.

In addition, other means are available to more precisely allocated items of occupancy cost to the respective EESEU's. For example, total EESEU costs could be allocated first to the individual rooms within a building based on its size in square feet. In this way a room rental charge could be established, respecting the size of a room. The quaternary rate for each EESEU would then respect specific room sizes. This methodology would require substantially more clerical effort to support it, however, and, subject to field trials, the methodology presented in the report appears to be the most reasonable. Upon determination, the quaternary rates are then posted to the respective EESEU cards.

The total ESSEU rate may then be calculated by summing the respective primary, secondary, tertiary and quaternary rates.

Upon definition and determination of the rates for each EESEU, EESEU's may be assembled into various curricula as illustrated in Exhibit ____. The specific types and quantities of EESEU's making up the students curriculum are assembled as illustrated in Exhibit _____. One of the features of the system that the planner will find helpful is that in reviewing the various alternative EESEU combinations that may be used to establish the curricula the associated costs of each of the alternatives are readily determined. By use of a worksheet, the planner can array a number of types of EESEU's and quantity combinations comprising alternative curricula and by extending the total rate of each EESEU specified by the number of the respective EESEU's, the cost of the curriculum in total and by EESEU component may be identified. This is not to say that components of the curriculum should be established exclusively on the basis of cost; however, it allows the planner to consider an important element of curriculum planning and that is cost.

In addition, the system aides the planner in evaluating the curriculum content on the basis of the quantities of the various curriculum components which are stated. It does not, however, address any qualitative aspects of the curriculum. As with all elements of the system - only quantities and cost components are addressed - qualitative considerations are beyond the scope of the system.

The scope of this section of the report was to develop the concept of the EESEU and to illustrate how the EESEU rates are developed. Other reports generated by the system and support requirements of the system are discussed in other sections of the report.

SECTION VII

CURRICULUM

The word "curriculum" is similar to the word "cost," in that its meaning depends on the context in which it is used. It was added to the public school teacher's vocabulary some 20-30 years ago. Prior to that time the meanings of "curriculum" seem to relate to a course of study in a university and then to a "fixed course of study." Today most statements of meaning appear to reflect some or many concepts and purposes of the educational process. "Curriculum" today might be defined as "everything in a school's program; everything done by a teacher or a student." Curriculum no longer relates to basic subjects, such as reading, writing and arithmetic, but a great variety of subjects, such as black nationalism, space travel, dollar devaluation or the energy crisis! It also includes the preparation for intelligent citizenship, vocational training, or facing the realities of a drug culture.

Curriculum now seems to embody the sum total of school experiences; the learning of facts and figures; the acquisition of skills; the habits and ideas adopted; the admixture of personalities confronted; the building in which education is achieved; even the community which is served -- and all this within a specific time reference or school year.

For purposes of this study, the philosophical or psychological foundations of curriculum were not enough. In order to assign costs within the educational system, it became necessary to define specifically that which the system was delivering to the student. Because the school system of today accepts responsibility for the student beyond that time which is devoted to instruction in classical subjects, the curriculum had to embrace all activities of the student during the time periods the student was under the control of the school system. These times include such elements as recess, lunch period (if taken at the school), transportation and supervised athletics. There is little question but what trends and doctrines influence the qualitative educational process, but except to the extent these are included in a subject content, a time sequence and hence quantitative, they cannot be subjected to costing techniques. While education must be evaluated qualitatively, this is work for the educators; quantification alone is the essential factor in the cost study. The interest is in what is being taught, not how or for what purpose. There is no attempt in this study to provide for the qualitative judgment of teachers, administrators or school.

In the development of this study, we sought to quantify the curriculum or class instructional content before ascribing dollar values. We first approached the Office of the Superintendent of Public Instruction, State of Illinois, for curriculum guidelines. While all personnel associated with this office sought to cooperate and be helpful, it was pointed out to us that unlike most European countries where there is historically a strict dissertation of education content, as well as of time allocation, Illinois schools are organized and conducted as independent local units. The local Board of Education, through its administrative and teaching staff, are responsible for the course of study without state government coercion. There is no "master plan." The Office of the Superintendent of Public Instruction, with responsibilities mandated and defined by Code, is in essence limited to offering curriculum advice on request.

In a similar manner we discussed this subject with the Office of the Cook County Superintendent of Schools and with officials of various in-state and out-of-state school districts. Although we did obtain a curriculum guide for one or more courses in specific grade level, we found no school district with printed guides for all classes. For this reason it was necessary for us to develop a curriculum for our hypothetical school district.

In the course of our research visits to the four school districts in Illinois (identified earlier in this report), we sought specific data on the activities of enrolled students. The cooperation during each visit was outstanding and provided the opportunity to obtain data on both general and special education curricula. These visits and the resultant observations provided us with the material used in the development of the curricula for the hypothetical school district.

The curricula as used in this report does not necessarily reflect what is being taught in Mounds, Peoria, Gurnee, or Chicago, Illinois, but is a composite of what was seen or discussed. There is input from all districts, but purposefully no one area can be singled out for either credit or reproof based upon what is included here. Nor should this curricula be assumed in any way to be a "model" or that which should be delivered. It has been developed for this study solely to illustrate costing techniques.

Noteworthy though is the fact that while educators seem to ascribe varying definitions to the single word "curriculum" in each area, city and district visited by the field investigators, that which was being taught was identified in terms of a "subject" not a so-called "concept," and could be quantified in terms of minutes.

The curriculum, as has been developed, might be equated with an engineering study preceding the manufacture of a product. Such study provides the product specifications, defines what it is, identifies component parts, determines what it is to include. It does not prescribe "how" it should be manufactured. The curriculum as used in this study might be compared with such specifications. It does not determine how the subject is to be taught. A unit of arithmetic is not education, it is the subject matter to be delivered during a fixed period of time.

The curriculum represents the predetermined input, it provides the "something" to be costed. In a broad sense it represents the quantity of education offered each child. The total of all units to be delivered can be identified, isolated, costed and compared.

There is an obvious assumption suggested in the foregoing. It is presumed that someone or some group representing authority has determined the specifications of what is to be offered, i.e., an administrator has outlined the teaching day. Starting times are not negotiable, class size is based upon enrollment, rather than personal preference, and, finally, the subject(s) to be taught have been stipulated and within a specific time frame.

Only those who perceive of the educational experience as being wholly unstructured and without subject content could conceivably complain that the above assumptions represent a regression to traditionalism. But whether the curriculum be traditional or more experimental, under no circumstances does this technique imply any effort or intent to control the teaching methodology. The "what" is to be taught must be identified. The "where" teaching to occur must be stipulated, the "when" teaching shall be formally conducted (i.e., time in a classroom) indicated, and "who" is to be taught also specified. But how the classroom is conducted and the results achieved, regardless of the importance, are not a part of this study.

The curriculum as used in this report involves a time sequence for classroom activity. In terms of this model, however, it would be equally usable if, rather than teaching arithmetic, e.g., 186 days of 40 minutes each, the teacher preferred to concentrate exclusively on arithmetic for some 17½ consecutive days and then move to another field. The only time a teacher would need to report on her work would be when she decided to spend more or less time than the specified 7400 minutes (185 days x 40 minutes) in this pursuit. Whether the teacher deemed 8400 or 6400 minutes as appropriate is not of consequence. Any discrepancy from plan will, however, show as a variable from that which was planned.

It has been suggested further that children cannot be equated with a manufactured product and this is, of course, obvious. There is no rigidity built into this costing model, it is equally applicable to programmed instruction or interest centered subject matter. Any curriculum can be adapted as long as it is recognized that a curriculum or framework for delivering education is necessary. The analogy to industry is not carried to the point of product standardization.

In applying the curriculum to the cost model, it was necessary to establish the number of students to be included in each period covered.

The facilities first provide a physical limitation. For example, a classroom might be equipped to seat only twenty students, hence the class size for that item in the curriculum would be limited to that number. Discussions with educators suggest that in any event classroom instruction to over thirty students at one time is counterproductive, hence the maximum class size, for purposes of this report, has been set at that maximum. Non-instructional portions of the curriculum, such as lunchroom, recess, gym, etc., tend to relate to the physical capacity of the facility.

Special education imposes special limitations which are closely identified with the curriculum. As is illustrated in this model, some classes are limited to five or less students and, in some cases, to one student.

The class sizes as discussed here are referred to in other sections of this report as "capacity."

SECTION VIII

ACCOUNTING APPLICATION

The financial statements as prepared utilizing the system described in this report are the same as those prepared utilizing conventional financial accounting systems and accounting manuals with the exception of the report of cash expenditures. The system does not disturb the generally accepted reporting of asset, liability and fund balance accounts as maintained under the principles of fund accounting. The chart of accounts required to support the system is no different than that presently described by the Illinois Financial Accounting Manual and Handbook II, Financial Accounting for Local and State School Systems. In addition, revenues and expenditures may be recorded under either the cash or accrual methods as is the case under conventional financial accounting for school districts. A particular school may use whatever funds or fund group designations as have been used in conventional practice.

Generally, utilizing conventional financial accounting systems, a number of financial reports are prepared to provide boards of education with the data necessary to exercise control over expenditures and financial position. Included might be a Treasurer's Report presenting a monthly summary of beginning cash salaries. cash receipts, and cash disbursements and the ending cash balance. A Statement of Financial Position also would most likely be presented listing assets, liabilities, and fund balances for each fund. In addition a Budget Summary or a Statement of Expenditures Compared to Budget would likely be prepared. None of these reports nor the procedures necessary to develop these reports are disturbed by the existence of the cost accounting system.

On the following page is an illustration of a Statement of Expenditures in a form used by many school districts today. It has been constructed to represent the hypothetical school district described elsewhere in this report. The statement represents a summary of cash expenses for the year compared with the budget established at the beginning of the year with an indication of the amounts over and under the budget.

ERNST SCHOOL

STATEMENT OF EXPENDITURES

Year ended June 30, 1973

SCHOOL: SYSTEM-WIDE

	Budget	Actual	Actual Over-Under* Budget
EDUCATIONAL FUND			
Administration:			
Salaries	$ 155,200	$ 158,320	$ 3,120
Contractual services	12,400	11,200	1,200*
Supplies	7,000	7,230	230
Travel	3,900	3,750	150*
Other	6,200	6,110	90*
	184,700	186,610	1,910
Instruction:			
Salaries:			
Principals	198,600	197,810	790*
Consultants or supervisors	-o-	-o-	-o-
Teachers	2,674,200	2,668,315	5,885*
Teachers aids	214,800	213,185	1,615*
Other instructional staff	111,300	105,720	5,580*
Secretaries and clerks	119,400	117,310	2,090*
	3,318,300	3,302,340	15,960*
Supplies:			
Textbooks	33,200	37,215	4,015
Library and audio-visual	36,500	35,110	1,390*
Other instructional supplies	92,900	93,785	885
Travel	6,600	8,300	1,700
Tuition	4,200	4,150	50*
Other	99,500	100,405	905
	3,591,200	3,581,305	9,895
Health:			
Salaries	100,300	98,215	2,085*
Supplies	3,100	3,275	175
	103,400	101,490	1,910*
Fixed charges - insurance	62,000	64,350	2,350
Student and community services - lunch program:			
Salaries	91,300	89,385	1,915*
Materials and supplies	123,300	133,615	10,315
	214,600	223,000	8,400
TOTAL	$4,155,900	$4,156,755	$ 855

STATEMENT OF EXPENDITURES (CONT'D)

SCHOOL: SYSTEM-WIDE

	Budget	Actual	Actual Over-Under* Budget
BUILDING FUND			
Operation:			
Salaries	$ 86,040	$ 85,605	$ 435*
Contractual services	50,000	51,230	1,230
Supplies	24,000	23,875	125*
Heating	37,000	35,625	1,375*
Utilities	76,000	76,825	825
	273,040	273,160	120
Maintenance:			
Salaries	88,560	88,140	420*
Supplies	18,000	18,775	775
	106,560	106,915	355
Fixed charges - insurance	26,400	25,315	1,085*
Capital outlay:			
Additional equipment	1,500	1,425	75*
Replacement equipment	1,000	1,385	385
	2,500	2,810	310
TOTAL	$ 408,500	$ 408,200	$ 300*
TRANSPORTATION FUND			
Operation:			
Contractual services:			
Regular students	$ 79,100	$ 82,400	$ 3,300
Special education students	78,000	76,225	1,775*
TOTAL	$ 157,100	$ 158,625	$ 1,525
MUNICIPAL RETIREMENT FUND			
Fixed charges - employer's share of retirement systems	$ 25,600	$ 25,180	$ 420*
	$4,747,100	$4,748,760	$ 1,660

Utilizing the cost system described in this report, a restatement of the Statement of Expenditures is made and presented on the following page as the Statement of Costs Earned Based upon EESEU's Delivered. The same accounts and amounts as were presented in the Statement of Expenditures have been rearranged into classifications of primary, secondary, tertiary and quaternary expenses as were described in Section VII - EESEU.

The reclassification permits a comparison with the "costs earned" by actual delivery of EESEU's. A review of this statement shows, for example, that while the salaries for teachers (a primary cost) were actually $5,885 less than budgeted, they were actually $213,465 more than was actually delivered to the students in planned teacher services.

Further, that while secondary costs were actually $11,685 more than budgeted, those expenses were $45,375 more than the planned cost of delivery. Similar comparisons of the tertiary and quaternary expenses can be made.

ERNST SCHOOL

STATEMENT OF COSTS EARNED BASED ON EESEU'S DELIVERED

Year ended June 30, 1973

SCHOOL: SYSTEM-WIDE

	Budget	Actual	Actual Over-Under Budget
PRIMARY COST			
EDUCATIONAL FUND			
Instruction:			
Salaries:			
Teachers	$2,674,200	$2,668,315	$ 5,885*
SECONDARY COST			
EDUCATIONAL FUND			
Instruction:			
Salaries:			
Teacher's aides	214,800	213,185	1,615*
Supplies:			
Textbooks	33,200	37,215	4,015
Other instructional supplies	92,900	93,785	885
Student and community services - lunch program:			
Salaries	91,300	89,385	1,915
Materials and supplies	123,300	133,615	10,315
TOTAL SECONDARY	555,500	567,185	11,685
TERTIARY COST			
EDUCATIONAL FUND			
Administration:			
Salaries	155,200	158,320	3,120
Contractual services	12,400	11,200	1,200
Supplies	7,000	7,230	230
Travel	3,900	3,750	150
Other	6,200	6,110	90
Instruction:			
Salaries:			
Principals	198,600	197,810	790
Other instructional staff	111,300	105,720	5,580
Secretaries and clerks	119,400	117,310	2,090
Supplies:			
Library and audio-visual	36,500	35,110	1,390
Travel	6,600	8,300	1,700
Tuition	4,200	4,150	50
Other	99,500	100,405	905

SCHOOL

BASED ON EESEU'S DELIVERED

June 30, 1973

YSTEM-WIDE

	Budget	Actual	Actual Over-Under* Budget	Costs Earned Based on EESEU'S Delivered	Actual Over-Under* Costs Earned Based on EESEU'S Delivered
	$2,674,200	$2,668,315	$ 5,885*	$2,454,850	$213,465
	214,800	213,185	1,615*		
	33,200	37,215	4,015		
	92,900	93,785	885		
	91,300	89,385	1,915*		
	123,300	133,615	10,315		
TOTAL SECONDARY	555,500	567,185	11,685	521,810	45,375
	155,200	158,320	3,120		
	12,400	11,200	1,200*		
	7,000	7,230	230		
	3,900	3,750	150*		
	6,200	6,110	90*		
	198,600	197,810	790*		
	111,300	105,720	5,580*		
	119,400	117,310	2,090*		
	36,500	35,110	1,390*		
	6,600	8,300	1,700		
	4,200	4,150	50*		
	99,500	100,405	905		

STATEMENT OF COSTS EARNED BASED ON EESEU'S DELIVERED (CONT'D)

	Budget	Actual	Actual Over-Under* Budget
TERTIARY COST (CONT'D)			
EDUCATIONAL FUND (CONT'D)			
Health:			
Salaries	$ 100,300	$ 98,215	$ 2,085*
Supplies	3,100	3,275	175
Fixed charges - insurance	62,000	64,350	2,350
MUNICIPAL RETIREMENT FUND			
Fixed charges - employer's share of retirement systems	25,600	25,180	420*
TOTAL TERTIARY	951,800	946,435	5,365*
QUATERNARY COST			
BUILDING FUND			
Operation:			
Salaries	86,040	85,605	435*
Contractual services	50,000	51,230	1,230
Supplies	24,000	23,875	125*
Heating	37,000	35,625	1,375*
Utilities	76,000	76,825	825
Maintenance:			
Salaries	88,560	88,140	420*
Supplies	18,000	18,775	775
Fixed charges - insurance	26,400	25,315	1,085*
Capital outlay:			
Additional equipment	1,500	1,425	75*
Replacement equipment	1,000	1,385	385
TRANSPORTATION FUND			
Operation:			
Contractual services:			
Regular students	79,100	82,400	3,300
Special education students	78,000	76,225	1,775*
TOTAL QUATERNARY	565,600	566,825	1,225
TOTAL	$4,747,100	$4,748,760	$ 1,660

EESEU'S DELIVERED (CONT'D)

	Budget	Actual	Actual Over-Under* Budget	Costs Earned Based on EESEU'S Delivered	Actual Over-Under* Costs Earned Based on EESEU'S Delivered
	$ 100,300	$ 98,215	$ 2,085*		
	3,100	3,275	175		
	62,000	64,350	2,350		
	25,600	25,180	420*		
TOTAL TERTIARY	951,800	946,435	5,365*	$ 870,720	$ 75,715
	86,040	85,605	435*		
	50,000	51,230	1,230		
	24,000	23,875	125*		
	37,000	35,625	1,375*		
	76,000	76,825	825		
	88,560	88,140	420*		
	18,000	18,775	775		
	26,400	25,315	1,085*		
	1,500	1,425	75*		
	1,000	1,385	385		
	79,100	82,400	3,300		
	78,000	76,225	1,775*		
TOTAL QUATERNARY	565,600	566,825	1,225	521,479	45,346
TOTAL	$4,747,100	$4,748,760	$ 1,660	$4,368,859	$379,901

The cost system also reveals the cause of the variations portrayed in the preceding statement. In the following Cost Analysis Statement, the "earned" costs of education delivered are summarized by cost classification. Literally, the caption Primary Cost Earned represents the sum of that cost on all EESEU's actually delivered to students. The same is true for secondary, tertiary and quaternary costs. The difference between these costs earned by delivery of services to students, and actual expenses incurred is represented by the "variances". In the case of this illustration, the total variance amounted to $379,901.

An analysis of the cause of the variances is provided by the system and is set forth in this Cost Analysis Statement. A more detailed description of the nature and composition of the variances is provided later in this section.

Briefly, in the illustration, it is shown that of the total variance between planned and actual:

- $51,691 resulted from the incremental amounts paid to teachers because they possessed levels of education over the minimum required for the classes they conducted.
- $88,915 resulted from the incremental amounts paid to teachers because their length of service was in excess of the minimum required for the classes they conducted.
- ($49,780) resulted because the district did not provide all of the time for students as set forth in the curricula for the year.
- $187,700 resulted because students were not in attendance at the schools to receive the education for which costs were incurred.
- $101,375 resulted because the enrollment at the schools was not at a level at which the teachers could provide instruction or for which the facilities could accommodate.

ERNST SCHOOL

COST ANALYSIS STATEMENT

Year ended June 30, 1973

SCHOOL: SYSTEM-WIDE

Primary cost earned	$2,454,850
Secondary cost earned	521,810
Tertiary cost earned	870,720
Quaternary cost earned	521,479
TOTAL COSTS EARNED BASED ON EESEU'S DELIVERED	4,368,859
Variances:	
Teacher qualification	51,691
Teacher length of service	88,915
Class-time	(49,730)
Attendance	187,700
Capacity	101,375
TOTAL VARIANCES	379,901
TOTAL EXPENDITURES FOR EDUCATION	$4,748,760

The preceding financial and cost statements are designed to be prepared in the ordinary course of bookkeeping procedures. A more detailed description of the preparation of this information is included in the following parts of this section, and a description of the additional time required to generate the data is included in Section_____.

Substantial additional information is retrievable for detailed cost analyses should such be desired or needed in the administration or reimbursement processes.

Since the EESEU is the foundation of the system and since the costs per EESEU or ESSEU rates are predetermined - two departures could occur as actual results are compared against the predetermination or plan. First, actual prices paid per unit of an item could depart from those originally anticipated. For example, the price of a particular textbook or the salary of a particular teacher, or the price of a particular piece of equipment may turn out to be more or less than originally anticipated. These types of variances are identified as price variances.

In addition, another type of basic variance can occur. This kind of variance would occur as a result of certain quantity variations. Examples of these kinds of variances would include a greater number of textbooks required per EESEU than originally anticipated or the delivery of a larger or smaller number of EESEU's than originally planned or the attendance of fewer numbers of students than is represented by the capacity of the school or particular facility. The qualification, length of service and scheduling teacher variances and the overall spending variance represent price variances, while the class-time, attendance and capacity variances represent quantity variances.

In discussing the reports in detail, sources of information necessary to develop the reports may be identified. The Statement of Expenditures report would be developed using the same procedures and source information as are currently practiced in the district. The format and items of information presented in the report would be the same as is the case in conventional practice. Certain subsidiary records would have to be maintained, however, in order to develop the information required for the supplementary Statement of Costs Earned Based Upon EESEU's Delivered.

The information required for the preparation of this report is as follows:

1. Budgeted expenditures reclassified by cost category.
2. Actual expenditures reclassified by cost category.
3. Number of EESEU's actually delivered by type.
4. Average number of students to which the EESEU's were delivered.
5. Product, for each type of EESEU, of the number of EESEU's delivered, the average number of students to which the EESEU's were delivered and the primary, secondary, tertiary and quaternary rates for the respective EESEU's.

The information sources for each of the information requirements may be readily identified. The information source for budgeted expenditures reclassified by cost category is the annual budget. As the annual budget is prepared corresponding to the financial statement format as shown in the preceding Statement of Expenditures, memorandum notations should be made for each natural expense category indicating which cost category the particular expense items relate to. These expense items can then be reclassified into their respective cost categories in order to develop the respective ESSEU rates. The budget column of the Costs Earned Based on EESEU's Delivered report is prepared simply by extracting the various natural expense items, respecting fund group distinctions, from the annual budget and presenting them by cost category.

The next item of information presented in the report of cost earned based on EESEU's delivered is actual expenditure data. The source of the actual expenditure data is the school's existing report of expenditures. As with the budgeted amounts actual expenditure data are reclassified by cost category for purposes of presentation in the report. Notice that the same memorandum notations developed for the budgeted data must be respected in reclassifying actual expenditure data.

The next item of information is a comparison of actual expenditure data to the budget. The source of this information is the same as that for actual expenditure data, the school's existing financial statements. Again, however, this data must be reclassified by cost category - primary, secondary, tertiary and quaternary.

Information required to develop costs earned based on EESEU's delivered requires that the number of EESEU's, by type, actually delivered, the average number of students to which the EESEU's were delivered and the primary, secondary, tertiary, and quaternary rates for each EESEU be known. Costs earned based on EESEU's delivered represents the sum of the products of each type of EESEU multiplied by the average number of students to which the EESEU was delivered multiplied by each of the four rate categories. The totals of each of the four cost categories earned are then reported in the costs earned based on EESEU's delivered report. Costs earned based on EESEU's delivered by cost category may then be compared to actual expenditures in total by cost category.

Although, for purposes of presentation in this report, it is envisioned that costs earned based on EESEU's delivered would be developed only in total by cost category, the system permits for costs earned based on EESEU's delivered to be determined and reported for each natural expense category within the four categories if desired. If costs earned based on EESEU's delivered are to be determined for each natural expense category, a substantially greater number of calculations are required, thereby compounding the amount of clerical effort required, unless data processing facilities are available. In addition, the report of costs earned based on EESEU's delivered is presented for the school system as a whole, however, the report could be prepared for each school and grade or program level within the school, if desired, providing that the existing chart of accounts can capture actual expenditures down to this level of detail.

In order to facilitate the recording and summary of the information necessary to develop costs earned based on EESEU's delivered several subsidiary records should be maintained. These records include:

1. Attendance register
2. Curriculum register
3. EESEU file
4. Register of costs earned based on EESEU's delivered.

The attendance register is illustrated in the Appendix. The register permits the accumulation of weekly attendance statistics for each school and grade or program level. The form presented is merely a suggested form, since the attendance recording procedures normally in existence at the school should support the system satisfactorily. The attendance register permits the accumulation of the attendance statistics necessary to compile the average daily attendance information required for preparation of the Report of Costs Earned Based on EESEU's Delivered. Although the attendance register provides for pupil attendance to be recorded for each type of EESEU delivered - attendance need only be taken once daily, say in the homeroom, as is the practice in many districts. If attendance is taken only once, daily, the weekly attendance figure recorded from these daily attendance reports in the attendance register would be the same for all types of EESEU's delivered during that week. Memorandum notations of the EESEU capacity and number of students assigned may also be recorded in the attendance register. As the number of students assigned changes, as a result of children moving in and out of the district, the number of students assigned should be updated in the attendance register.

The curriculum register is illustrated in the Appendix. The curriculum register facilitates the orderly accumulation of total EESEU's delivered for a period of time by school, grade or program level, and EESEU component. As previously stated this information is required in order to develop costs earned based on EESEU's delivered. Notice that the curriculum register provides for a statement as to the types and numbers of EESEU's planned for a particular curriculum. This information would be determined and posted to the curriculum register as a result of the school's normal curriculum planning and budget cycle. This information is also required in order to develop the predetermined EESEU rates as discussed in the "EESEU" section of this report.

Since the reporting of costs earned based on EESEU's delivered is established on the basis of EESEU's delivered rather than EESEU's planned - departures from the planned curriculum in terms of quantities of EESEU's must be recorded. These departures are reported by the teacher in combination with the daily attendance report. It should be emphasized that these departures are in terms of quantities only - nothing of a qualitative nature is required to be reported by the teacher in order to support the system. These departures would be recorded in the curriculum register probably on a weekly basis; however, the posting period could be semi-monthly or monthly depending upon the circumstances in the district. Only departures in terms of EESEU's need be posted to the curriculum register, since the number of EESEU's planned plus or minus weekly exceptions to the plan in terms of EESEU's would equal EESEU's delivered for a period of time. Provision has also been made in the EESEU register to record average daily attendance as summarized in the attendance register. Total EESEU's delivered is represented by the product of EESEU's delivered and average daily attendance for each curriculum component.

As a result of statistics recorded in the curriculum and attendance registers, the numbers of EESEU's delivered has been determined. The register of costs earned based on EESEU's delivered is a document designed to facilitate the calculations of the product of the number of EESEU's delivered and their respective predetermined primary, secondary, tertiary and quaternary cost rates, to yield costs earned based on EESEU's delivered. The costs earned based on EESEU's delivered register provides for a statement of the curriculum in terms of EESEU components for each school and grade or program level. In addition, the total number of EESEU's actually delivered are recorded as determined in the curriculum register. The product of the number of total EESEU's delivered and the respective primary, secondary, tertiary, and quaternary rates for each EESEU, obtained from the EESEU file, yield costs earned based on EESEU's delivered. The sum of the costs earned based on EESEU's delivered, by rate category, for each of the programs or grade levels within the school are equal to the total costs earned based on EESEU's delivered for the school by cost category. Likewise the sum of the costs earned based on EESEU's delivered for each school is equal to the costs earned based on EESEU's delivered for the district as a whole for each of the four cost categories. These amounts are in turn recorded on the statement of costs earned based on EESEU's delivered.

Now that the techniques used in developing the Statement of Costs Earned Based on EESEU's Delivered have been discussed, the Statement of Costs Earned Based on EESEU's Delivered can be compared and contrasted with the conventional budget report. First, the amounts presented as actual expenditures, budgeted expenditures and budget variances are exactly the same as those appearing on the conventional statement, with one exception. The exception is that the items, by natural expense category, have been reclassified by applicable cost category, as has been previously discussed. Additional information is also provided, comparing costs earned based on ESSEU's delivered to actual expenditures in total by cost category. In addition, a variance comparing actual expenditures to costs earned based on EESEU's delivered is reported.

It should be recognized that as the district prepares its budget, it either implicitly or explicitly makes certain assumptions as to the curriculum; capability of the school to serve a certain capacity of students; personnel, textbook, equipment and supply requirements necessary to educate a certain number of pupils; numbers of pupils assigned by school and by grade or program; the number of students that will be attending by school by grade or program level; etc. Departures from the plans as expected by those assumptions, all explicitly stated as a result of the development of the predetermined EESEU costs, and actual results, as expressed by actual expenditure data, are captured in the gross variances. Obviously, if these gross variances by cost category are to be really meaningful they must be further explained. This explanation is provided in the Cost Analysis Statement, as discussed later in this section of the report.

The gross variances as presented in the supplementary statement of Costs Earned Based on EESEU's delivered, then, compares and presents the differences between the cost of education and the actual expenditures for education. This information is particularly meaningful if the Statement of Costs Earned Based on EESEU's Delivered is prepared for each school or for each grade and program level within a school. If the report is prepared at this level of detail the central administrator can then compare and assess the financial performance of each school within the district. Likewise, individual school administrators can assess the financial performance of each of the grade levels or programs under his charge. These comparisons will not be particularly meaningful, however unless the Cost Analysis Statement, which provides an explanation of the gross variances, is prepared for the same level of detail.

The Cost Analysis Statement shown in the preceding part of this section provides the details, in terms of the elements making up the gross variances. The first section of the Cost Analysis Statement provides a summary costs earned based on EESEU's delivered in terms of the primary, secondary, tertiary and quaternary cost categories. The source for this data is the register of costs earned based on EESEU's delivered, as previously discussed. The balance of the statement explains and presents the components of the gross variances identified in the Statement of Costs Earned Based on EESEU's Delivered.

In referring to the example of the Cost Analysis Statement, six variances are identified. The variances are identified as teacher qualification, teacher length of service, class-time, attendance, and capacity. The sum of the total costs earned based on EESEU's delivered and the variances is equal to total expenditures for education and is equal to the total of actual expenditures as reported in the school's financial statements. The purpose of the variance analysis is to explain why total costs earned based on EESEU's delivered and total expenditures for education differ. The statement, as illustrated in this report has been prepared for the district as a whole; however, in practice, this statement would be preapred to whatever level of detail the Statement of Costs Earned Based on EESEU's Delivered has been prepared.

In order to facilitate the recording and summary of information necessary to develop the Cost Analysis Statement, a subsidiary record, the variance analysis register, should be developed and maintained. An example of this register is presented in the Appendix. This register should be maintained for each school within the district and for each grade or program level within the school.

As with the register of costs earned based on EESEU's delivered, the components of the curriculum in terms of EESEU's must be itemized for each grade or program level. In addition the number of EESEU's planned, by curriculum component, must be stated as determined from the EESEU file; the number of EESEU's delivered must be stated as determined in the curriculum register, the pupil capacity, enrollment, and attendance must be stated as determined in the attendance register; the total EESEU rate must be recorded as determined from the EESEU file and total costs earned based on EESEU's delivered must be recorded as determined in the costs earned based on EESEU's delivered register.

With these items of information determined the attendance, capacity and class-time variances can be computed for each grade or program level. The computations involve comparing various quantities of EESEU's, and pricing the various EESEU quantity differences at the total predetermined EESEU rate. More definitively the variances are computed as follows:

Attendance: For each EESEU component of a particular curriculum, the difference between the average number of pupils, attending and the average number of pupils enrolled must be determined. This difference is then multiplied by the number of EESEU's planned and the total EESEU rate for that particular curriculum

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component. The sum of the attendance variances for all grades and programs within the school and all schools in the system is recorded as the attendance variance in the Cost Analysis Statement.

Capacity: For each EESEU component of a particular curriculum, the difference between the pupil capacity and the average pupil enrollment must be calaculated. This difference, multiplied by the number of EESEU's planned and the total predetermined EESEU rate for that particular curriculum component yields the capacity variance. The sum of the capacity variances for all grades and programs within the school and all schools within the system is reported as the capacity variance in the Cost Analysis Statement.

Class-Time: For each EESEU component of a particular curriculum, the difference between the number of EESEU's planned and the actual number of EESEU's must be calculated. This difference is multiplied by the average number of pupils attending and the total predetermined EESEU rate for that particular curriculum component to yield the class-time variance. The sum of the class-time variances for all grades and programs within the school, and all schools within the system is reported as the class-time variance in the Cost Analysis Statement.

As stated previously the variance analysis register is used to calculate the attendance capacity and class-time variances. The qualification and length of service variances relate to the teacher or primary EESEU cost component. Fundamentally these variances explain why the rate paid to teachers as a group is different from the rates specified on the EESEU; i.e., the rate required for the minimum level of education and length of service necessary to deliver the EESEU.

In the model district,that has been described previously in this report, the minimum level of qualification and length of service required for the delivery of any EESEU is a B.A. degree with no experience. Therefore, the teacher qualification (education) and length of service pay rate variances may be computed as follows:

1. Analyze the payroll register to identify teacher's engaged in the delivery of EESEU's and determine amounts paid.
2. For each teacher, by referring to the district Salary Schedule, determine the difference between the base salary and the teacher's level of education.
3. For each teacher, by referring to the district salary schedule, determine the difference between the base salary and the teacher's level of experience.
4. The sum of the differences, as computed in (2) above, is equal to the teacher qualifications variance and is recorded as such in the Cost Analysis Statement.
5. The sum of the differences as computed in (3) above, is equal to the teacher length of service variance and is also recorded in the Cost Analysis Statement.

The remaining variance, entitled the spending variance, represents the remainder of the differences between total costs earned based on EESEU's delivered and total expenditures for education and is computed as total expenditures for education less total costs earned based on EESEU's delivered less the sum of the teacher qualification, length of service, class-time, attendance and capacity varainces.

Since the techniques for developing the variances have now been discussed, attention can be directed toward the meaning and interpretation of the variances. A discussion of the meaning, interpretation and uses of the variances follows:

Teacher Qualification The teacher qualification variance represents amounts paid to teachers in excess of amounts that would have been paid had the teachers had the minimum level of education required. In effect, it indicates amounts paid to teachers as a result of excess qualifications. This variance could be considered for purposes of State reimbursement. In addition, it is useful, to local administrators and boards of education in assessing staffing plans and policies both at the district level and the individual school level.

Teacher Length of Service - The teacher length of service variance represents amounts paid to teachers in excess of amounts that would have been paid had the teachers had the minimum length of service required. It represents amounts paid to teachers as a result of excess levels of experience. As with the teacher qualification variance, this variance could be considered for purposes of State reimbursement and is useful to local administrators, and boards of education in assessing staffing plans and policies both at the district level, the individual school level, and in comparison to other districts.

Class-Time - The class-time variance represents the difference between costs earned based on the type of EESEU's actually delivered compared to the costs that would have been earned had the planned number of EESEU's, by type, been delivered. It represents the dollar amount either positive or negative, occurring as a result of departures from the planned curriculum EESEU mix. Since each EESEU has its own unique rate, departures from the planned EESEU curriculum will create differences between costs earned based on the planned mix versus the actual mix. The class-time variance represents the dollar impact of those departures.

The class-time variance can be used by local administrators to asses the impact of departures from the curriculum on the costs of the school system. This assessment can also be made at the school and grade or program level if the Cost Analysis Statement is prepared to that level of detail. Since the class-time variance is documented in the variance analysis register, reference to the details in this register, with respect to planned versus actual EESEU's delivered, should prove helpful in future curriculum planning cycles. In addition to applications at the local district level, the class-time variance could also be employed as a reimbursement factor.

Attendance - The attendance variance represents the difference in costs between the average number of pupils attending and the average number of pupils enrolled. In effect, it represents costs that are not earned as a result of certain pupils who were not in attendance to receive the education provided. This variance is useful to the district administrators both in comparing the attendance performance of individual schools within the district and in making inter-district comparisons. As with the other variances, the attendance variance could also be employed as a reimbursement factor.

Capacity - The capacity variance expresses the difference in costs between the pupil capacity and the number of pupils enrolled. It represents unearned costs as a result of excess pupil capacity (inversely, facilities could be overutilized). This varaiance can be utilized by the local administrator in comparing the costs of idle facilities, school by school and in making inter-district comparisons. It also is a factor that might be considered in future building plans of the district. If the cost of idle facilities is to be considered as a factor in reimbursement, the capacity variance could be used for this purpose.

SECTION IX

USES AND BENEFITS OF STUDY FINDINGS

Historically, the cost of education, both regular and special, has been analagous with actual expenditures. Comparisons between schools within a district, between districts, between states, etc. have been compared upon actual expenditures with no regard as to what the cost of education should have been. This is understandable since, today, no standard costs or standard costing system has been developed for the educational process. Now through the collaboration of educators, social scientists, and cost accountants, a technique for developing and applying standard cost data to the educational process has been designed.

Some of the more apparent manners in which these techniques, when appropriately applied, will aid educators and educational administrators are in terms of reimbursement for added special education costs, preparing budgetary requests to school boards, allocating resources in terms of priority, and in planning future programs in terms of costing. Perhaps the foregoing are some of the more apparent ways in which these cost accounting techniques can be helpful. In addition, however, we have observed in recent years an ever growing accumulation of legislation relative to applying more definitive accounting techniques to the educational process; specifically calling for cost accounting in the area of special education such as the Williams Bill. In the final analysis it may well be legislation that will create the universal adoption of the techniques and procedures encompassed in this report.

Listed below are several of the uses and related benefits that educators and educational administrators may glean from the application of cost accounting principles of the educational process. This listing is not a theoretical one, but one drawn from the comments both oral and in writing that educators have directed to the authors of this report during the course of the cost study as to how findings of the study can be utilized and the concometent benefits that can be derived from the application of these techniques.

Development of Standard Costs System

By applying the techniques and procedures outlined in this report, educators and educational administrators will develop a standard cost system based on the particulars of their own school and school districts. It is fully realized that the complete development of a standard cost system may take several years, dependent upon the amount of time available of administrators to devote to the applications and collection of data. However, when standard costs have been developed for the various elements of the educational process, they can be readily adjusted and remain as useful tools for indefinite periods of time provided that they are maintained and updated on a regular basis. The maintenance and updating will require only nominal amounts of time and will enable the educational administrator to devote more of his time to the planning and analytical functions. Once a standard cost system has been developed for a school district, school administrators will know what all of the educational procedures that exist within the school district should cost. As new educational techniques are developed the methodologies of this report can be applied to develop standard costs for these new methodologies to enable the comparison of the new methods with those already in existence.

Analysis of Variance from Standard

After standard costs have been developed within a school district it will provide the means for measuring actual results against the standard. It should be noted that variance of costs from the standard is not necessarily good nor bad and only after analysis of the cost of factors causing the variances, can a decision be made as to whether corrective action can or should be taken to eliminate or control the variance in the future. For instance, a variance may occur in any one particular class in a given year because of a significant drop in student population in a given class which is due to a chance fluctuation. Obviously very little can be done to control such chance fluctuations in the future. On the other hand, a significant variance may occur in transportation which, upon analysis is shown to be caused by changing of the bus routes by the bus drivers resulting in a significant overage in actual cost when compared with the standard. The remedial action in such a case would obviously be to revert to directing the bus drivers to follow the originally planned bus route.

New Program Planning

After standard costs have been developed for a number of the education routines in a school district, the costs of new programs can be hypothecated on the basis of the information that is currently on hand. To develop a projected cost for a new program, the cost of the new program can then be compared with those of the already existing programs. Educators and administrators will then have a basis for making a value judgment as to which program is the most effective in terms of cost. It does not provide the basis for qualitative judgments -- purely quantitative on the basis of costing information. The educators and educational administrators can, however, make value judgments utilizing the quantitative information generated by the standard cost system. In other words the cost accounting technique developed in this study are purely quantitative and simply form the basis for educators and educational administrators to make improved value judgments on the basis of the quantitative information supplied to them by a standard cost system.

Improve Reimbursement Procedures

Reimbursement procedures for the added costs of special education vary significantly from state to state and even within states in many cases. With the development and implementation of a standard cost system a school district will be in a position to factually demonstrate: the difference of standard costs between regular and special education; and the differences in the actual expenditures between regular and special education. Dependent upon the state formula for reimbursement, the school district will be in a sound position to apply for benefits and will be able to project the extent of reimbursement that they can plan to receive for mid-range and long-range budget projections.

Replication of Standard Cost Systems

The techniques and procedures outlined in this study when implemented will serve as the basis for the development of similar standard cost systems throughout the United States. While it would be difficult if not impossible to make comparisons between the different parts of the country with widely differing school systems, there would be a benefit in comparing student educational units that are being utilized in educational programs in diverse parts of the country. Further, it is conceivable that educators could make comparisons of selected programs in diverse parts of the country, using student educational units as a common language to make comparisons of the qualitative aspects of the programs being discussed.

Further, the techniques and procedures outlined in this report after being field tested, could readily be implemented throughout the United States to enable school districts to reap the benefits of an educational standard cost system.

Alternative Program Analysis

After a standard cost system has been developed in a school district it can serve as a decision-making base for educations in examining alternative modes and programs of education. For instance, assuming a district currently has special education and regular education comingled in all of its schools, what would be the quantitative impact in terms of dollars of placing all special education in one school. Subsequent to this quantitative evaluation, educators could apply qualitative evaluations to arrive at a cost-effective decision.

Resource Allocation

Under circumstances when school districts have not been allocated the monetary resources requested or under the circumstance when budget requests have been reduced significantly, educators can use the educational standard cost system to identify the relative costs of programs within the district and determine which should be modified and or eliminated in order to conform to budgetary constraints. Again, the educational standard cost system supplies the quantitative aspect for this decision making by educators and educational administrators.

Standard Cost Systems and PPBS

Many school districts are in the process of implementing Program Planning Budget Systems (PPBS). This technique has great promise particularly in certain areas of program evaluation. A PPBS program coupled with a standard cost system would be a tremendously powerful tool in terms of evaluating programs both from a quantitative (cost) and qualitative (program effectiveness) basis and could lead to significant improvements in the utilization of the educational dollar in improving cost effectiveness of educational programs.

SECTION X

COST/BENEFIT ANALYSIS

Since the system described in this report develops EESEU costs or rates on a predetermined basis, the adequacy and reliability of the system depends to a large part on the budgeting procedures in effect within the particular district.

The system requires that budgets of administration and occupancy expense be prepared for each school within the system. In addition, the system requires that personnel, book, consumable supply and equipment requirements be prepared for each EESEU. Since these budgeting procedures are generally in effect within most school districts, in order to prepare the annual budget, these requirements cannot be considered as an added cost or an additional requirement created as a result of the system.

The analysis of these budgets in order to develop the predetermined EESEU rates, however, to represent an added time requirement created as a result of the system. It should be recognized that the development and definition of the EESEU's is a rather time-consuming task; however, it is essentially a one-time activity. After the initial development and definition of the EESEU's they need only to be updated annually. It should be further noted that initial definition of the EESEU's will require the cooperation and participation of the teachers within the district.

After the EESEU's have been developed and defined, only the efforts of business office personnel will be required to support the system, with the exception that the teacher would be required to report daily attendance, as is already the case, and any departures from the curriculum as initially agreed to. The teachers would report departures from the curriculum in amounts of time only - not qualatative departures. An example of a combined daily attendance and curriculum report is included in the Appendix.

Business office personnel would perform the clerical efforts required to convert the school budgets into the respective EESEU rates. To faciliate this task tertiary and quaternary worksheets may be developed along with standard budget forms to be used in itemizing secondary cost requirements of each EESEU, as illustrated in the Appendix. Again the predetermination of EESEU cost rates is an activity that needs to be performed only once each year. The clerical effort required for this activity is dependent on the size of the school system and the number of EESEU's involved and this clerical effort would most generally be performed during the school systems budgeting cycle. More specific time and personnel requirements made necessary as a result of these necessary clerical efforts could be established upon field testing.

During the year, business office personnel would record expenditures in the manner customary to their district using the existing chart of accounts. The chart of accounts should provide for expenditures to be captured by fund and by natural expense category. The system could generate variance reports down to the school, grade, and classroom level, however, it is assumed for purposes of this report that variance reporting would be required only at the district level. If variance reporting is desired for more detailed levels of reporting, the chart of accounts, in turn, would have to provide for the capture of expenditures by natural expense category at the school, grade, program or classroom level. For purposes of this report the chart of accounts as suggested in the Illinois Financial Accounting Manual has been used to classify expenditures, although other charts of account would work equally as well.

In addition to the recording of expenditures in the customary manner, these accounts must be relieved periodically using the predetermined EESEU rates. The frequency of the entries required to relieve the expenditure accounts depend upon the frequency in which variance reporting is desired. In other words if variance reporting is desired annually, the entries would be prepared annually;

if variance reporting is desired quaterly the entries would be prepared quarterly, etc. Amounts remaining in the accounts after the entries have been made represent variances and may be positive or negative. The types, calculation and interpretation of the variances is discussed in the "Financial Application" section of the report.

A number of accounting records would be required in order to accumulate the information necessary to determine the amounts of the entries. These records would include:

1. Attendance register
2. Curriculum register
3. Register of costs earned based on EESEU's delivered
4. Variance analysis register
5. EESEU file
6. Plant register

The attendance register is a document required to record daily attendance, as already required in most districts. In addition to a record of daily attendance, provision must also be made to capture the number of students assigned and the student capacity. This data should be recorded in the register for each curriculum and curriculum component for each school within the district. It is anticipated that the existing business office staff could maintain this register. Source data, namely attendance reports turned in by the teacher, as already required, would be posted to this register weekly, semi-monthly or monthly depending upon the attendance reporting procedures in effect within a particular district.

Information accumulated in the attendance register provides the information necessary for both State reporting purposes and for the determination of student quantities used in the register of standard costs of EESEU's delivered and the variance analysis register. The design of the register would ultimately depend upon third-party attendance reporting requirements.required of the particular district under consideration, however, in order to support the cost accounting system the attendance register must provide daily attendance information by school and by curriculum within the school.

The curriculum register is a document required to record the number of EESEU's delivered. As discussed previously, the predetermined EESEU costs are based upon certain combinations of EESEU's desired to develop the curricula within the various schools of the district. If a variance is to be developed indicating quantative departures from this plan, actual numbers of EESEU's delivered must be tabulated in order to compare EESEU's delivered by type to the original plan. The curriculum register has been developed to facilitate both the recording and tabulation of actual EESEU's delivered and comparisons with planned numbers of EESEU's. The curriculum register represents an added requirement to business office personnel, created as a result of the system.

The source data for this register is the combined curriculum-attenance report prepared by each teacher. The teacher is required to report only exceptions, in terms of quantities of EESEU's, to the curriculum plan originally agreed upon. It should be emphasized that no reports of a qualatative nature are required nor does the system develop any reports of a qualatative nature. The data submitted by the teacher would be posted to the curriculum register weekly, semi-monthly or monthly depending upon when the data is submitted by the teacher.

Information accumulated in the curriculum register provides the information necessary for both curriculum reporting to the state and for the determination of curricula and curricula EESEU quantities required for the register of standard costs of EESEU's delivered and the variance analysis register. The design of the register is dependent upon third-party reporting requirements required of the district under consideration. At a minimum, however, the curriculum register must provide a summary of curriculum content, in terms of EESEU's delivered, by school and by curriculum within school, in order to support the cost accounting system.

Supplementary financial statements comparing actual expenditures to costs earned based on EESEU's delivered have been discussed in the "Financial Application" section of this report. In order to determine costs earned based on EESEU's delivered, three types of information are required; number of EESEU's delivered by type, number of children in attendance and the respective EESEU cost rates. The register of standard costs of EESEU's delivered has been developed to faciliate the organization and tabulation of this information.

The information required for this register is provided from three source documents. The number of EESEU's delivered by curriculum component is obtained from the curriculum register; the number of children in attendance is generated from the attendance register and the predetermined ESSEU rates are obtained from the EESEU file. Extensions of the number of EESEU's delivered, the average number of children in attendance and the respective EESEU rates are performed in the register of costs earned based on EESEU's delivered. The totals of these costs earned based on EESEU's delivered are then posted to the supplementary statement of expenditures.

The frequency in which the register of costs earned based on EESEU's delivered register is updated dpends upon the frequency in which the supplementary statement of expenditures is to be prepared. If the statement is prepared annually, the register would be updated annually, if the statement is prepared quarterly, the register is updated quarterly, etc. Obviously the amount of clerical work required of business office personnel to maintain the register is dependent upon the frequency in which the register is updated.

If the cost of certain quantity variances are to be calculated and reported upon as described in the "Financial Application" section of this report a document must be provided in order to facilitate the computation of these variances. This document is called the variance analysis register - its components are fully discussed in the "Financial Application" section of the report. Source information for the variance analysis register is provided from the curriculum and attendance registers, the register of costs earned based on EESEU's delivered and the EESEU file.

The outputs of this register are the dollar amounts of the capacity, class-time and attendance variances and total costs earned based on EESEU's delivered appearing in the cost analysis statement. The frequency upon which this register is developed, as with the register of costs earned based on EESEU's delivered, is dependent upon the frequency in which the cost analysis statement is to be prepared. The maintenance of this register would require only the efforts of business office personnel and would not place any demands on the teachers, or administrative personnel outside the business office.

Another element or record required to operate the system is the EESEU file. This record is simply a file of all EESEU's that have been developed as described in the EESEU section of the report. After the initial preparation of the EESEU file, the file must be updated annually. Educational administrators and teachers would be responsible for updating the requirements section and added or deleted EESEU's, whereas, business office personnel would be responsible for the necessary rate determinations based upon the requirements designated. The file is used for curriculum planning purposes, for cost comparisions and for purposes of preparing the supplementary financial statements and supporting registers as previously described

The final element of the system is the plant register. It is envisioned that [illegible] plant register would be maintained only for school system buildings and fixed equipment, although a particular school system may wish to include moveable equipment for their own internal control purposes. The system does not require, however, that moveable equipment be included in the plant register. Provision should be made in the plant register to record, historical cost, estimated useful life, annual depreciation expense accumulated depreciation, net book value, location and a statement indicating whether the equipment benefit- all education programs or only selected programs.

The plant register should be updated at least annually for new items of equipment, deletions, etc. Business office personnel would be required to perform the clerical efforts necessary to maintain this register. It should be noted that the depreciation charges recorded in the plant register are maintained on a memorandum basis as recommended in Financial Accounting - Hand Book II . These depreciation charges do not appear on the regular financial statements of the district.

The procedures required to prepare the financial reports normally submitted by the district remain as they were prior to the implementation of the system. Information required in order to prepare the supplementary of cost reports, the cost analysis statement and the statement of costs earned based on EESEU's delivered are obtained from the supplementary registers as previously described.

The responsibilities for the clerical efforts necessary to maintain the system, with the exception of the preparation and maintenance of the EESEU file, i.e., rest with the business office personnel. Without field testing the model, however, it is difficult to quantify the additional amount of clerical effort required to support the system. Obviously this requirement becomes a function of the size of the district and the frequency in which supplementary cost reports are prepared. The system does not disturb the normal financial bookkeeping of the district; however, it does require that additional documents, namely the EESEU file, the register of costs earned based on EESEU's delivered, the variance analysis register and the plant register be prepared and maintained. The preparation and maintenance of these documents do not occur simultaneously; however, and the clerical effort required could be spread ouc fairly evenly throughout the year.

For districts having data processing capabilities, the attendance register, curriculum register, register of costs earned based on EESEU's delivered, the variance analysis register, the EESEU file and the plant register could all be maintained on this equipment in addition to existing accounting and administrative applications. If data processing capabilities are available it is likely that this system could be supported utilizing existing business office personnel, depending upon the size of the district.

One of the objectives of this original project, however, was to illustrate the types of documents, procedures and records that would be required in order to support the system manually, since this is most frequently the case.

An estimate of the time requirements necessary to support the system is presented below. These estimates have been prepared based upon our experience in developing the model and based on our review of the records and procedures presently existing in the four field survey districts. The estimates represent the additional clerical efforts required as a result of the system, assuming the system would be operated manually and assuming that the supplementary financial reports would be prepared semi-annually. Since these estimates have been prepared without the benefit of field testing, they should be viewed as approximations or guidelines rather than the more precise statements that would be developed as a result of field testing.

The estimated time requirements of teaching personnel necessary to operate the system are as follows:

Task	Basis for Estimate	Annual Estimated Time Requirements
. Develop EESEU file	25 minutes/EESEU 20 EESEU's/curriculum 50 curricula	420 hours
. Restate Lesson Plans in EESEU/curriculum form	90 minutes/ curriculum	75
. Report time departures from pre-planned curriculum	7 minutes/week/teacher 250 teachers	1100
		1595 hours
	Average annual time requirement per teacher	6.4 hours

The tasks required to be performed by business office personnel might be spread among the existing staff or one person might be added, who would work approximately one-half time on the system. The specific requirements are as follows:

. Prepare EESEU rate worksheets	9 schools 8 hours/school	70
. Compute EESEU rates	15 minutes/EESEU 1000 EESEU's	250
. Post EESEU rates to EESEU cards and assemble EESEU file	5 minutes/EESEU	80
. Prepare and maintain curriculum register	15 minutes/curriculum/ month	110
. Prepare and maintain register of costs earned based on EESEU's delivered	70 minutes/curriculum - semi-annually	120
. Prepare and maintain variance analysis register	150 minutes/curriculum - semi-annually	250
. Prepare and maintain plant register		40
. Compute variances	10 hours - semi-annually	20
. Prepare supplementary financial statements	20 hours - semi-annually	40
		980 hours

SECTION XI

PRE-IMPLEMENTATION RECOMMENDATIONS

It is strongly recommended that before the findings of this report are implemented that field testing be conducted in selected sites throughout the United States.

Field testing, as outlined below, will serve to "de-bug" the application of the cost accounting concepts embodied in this report and will also serve the purpose of developing a detailed implementation (i.e. users) manual that could be utilized by school districts throughout the United States who wished to develop cost accounting standards for their districts.

Further, pre-implementation would facilitate an evaluation of the attitudes of educators and educational administrators towards the new concept. Throughout the course of the cost study, educators indicated that teachers might resent the implementation of a standard cost system. It is understandable that teachers would resent any application of control over their activities because of their pride in professionalism and the tradition of freedom that the teachers have always enjoyed. Because of these strong feelings, the strategy of approaching teachers with a detailed explanation of the rationale for a cost accounting system is extremely important. Teachers must clearly understand the difference of quantitative control systems as differentiated from that of qualitative control systems. The cost system that has been developed under this study deals solely with the quantitative aspects of education and in no way attempts to deal with the qualitative aspects. If the results of the special education study are to be fairly evaluated, the teaching community must be made aware of this difference.

Selection of Field Test Sites

In field testing the findings of the special education cost study, the initial steps would be the selection of field test sites. Criteria for the selection of field test sites would be the geographical dispersion, variety of educational climates, and differing demographic characteristics of locales.

Three states have already volunteered sites that meet the above criteria and could represent the test sites for the West coast, the Southwest, and the upper Midwest. The states that have volunteered locations for field testing are Oregon, Utah, and Wisconsin. Two other states that have indicated interest are Maine and Virginia which states would also meet the above-mentioned criteria and fulfill the needs for the New England states and the Southeast in terms of locales.

Introduction of Study to Users in Field Test Sites

In introducing major systems changes in organizations, behavioral scientists have become increasingly aware that explanations for the need of change is the single most important factor in determining the immediate success or failure of the introduction of a new system.

The presentations covering the need for the system, how it would work and the outputs that will result from a standard cost accounting system would be tailored to the audience's informational needs in each of the six to eight field test sites. It is conceivable that separate presentations would be made in each of the school districts to administrative personnel, school boards, regular and special education teachers as well as the general public in order to satisfy their separate informational needs.

A common thread that would be followed in all presentations would be the advantages that the utilization of such a system would provide to students, teachers, administrative personnel, and to the taxpayers. All of the presentations explaining the systems and its various advantages should be made using layman's language and specifically, in the case of the teachers, should stress that such a system improves their position in substantiating the case for new and different teaching materials, time, etc., in that they are able to factually demonstrate the manner in which their time is expended.

Adaption of Cost Study Findings to Each Field Test Site

Since each of the field test sites used in the pre-implementation study will have different approaches to regular and special education, different curricula and different educational philosophies, the cost study findings will have to be adapted to the particular school or school district that is participating in the pre-implementation study. Student Educational Units will have to be written or modified and the cost accounting system adapted to the existing basic accounting system of school or school district.

Many of the Student Educational Units that the various field test site locations will be using are already in existence and have been documented in this report. However, as mentioned above, philosophies and educational techniques do vary and, accordingly, the specific Student Educational Units that are peculiar to a particular field test site may need to be adapted and, of course, will be added to the total library of Student Educational Units available.

Reporting Format

A crucial element in field testing is the manner of collective information and how the classroom teacher and related personnel expend their time. It is anticipated that the most efficient way to facilitate the teacher and related personnel in reporting the student educational units that they have delivered in any day is to design a basic format which has pre-printed listings of all of the elements of education that they normally deliver. In this case the educator would simply check off or fill in the number of Student Educational Units delivered. For Student Educational Units outside of the ones pre-printed on the form, the educator would identify the Student Education Unit by number and indicate the amount of time spent on it. At this point it is our opinion that educators spend 80% of their time on 20% of the Student Educational Units that are in any given curriculum. This hypothesis is of an extremely preliminary nature and field testing will shed further light as to its validity.

Field Test Site Observers

Trained observers would be assigned to each field test site location during the period of the actual testing. The function of the observer would be to aid the classroom teachers to better interact with the requirements of the cost accounting system. The observer would also work with administrators, specifically those responsible for the collection and collation and summation of accounting data to insure that the cost accounting results are properly gathered and integrated into the basic accounting system.

Another, and perhaps the most important, function that the observer would perform would be to evaluate and comment upon how well the cost accounting system adapted to a given field site situation and to record comments and suggestions made by educators and educational administrators as to ways in which it could be improved in subsequent applications.

Debriefing Educators Subsequent to Field Testing

Shortly after the completion of the field testing at each one of the selected sites, the formal debriefing would be conducted of all the key personnel who had participated in the field testing. The thrust of the debriefing would be to collect general impressions of the cost accounting system, problems that its implementation caused, ways that the system could be improved in the future, the manner in which the introduction preceding implementation might be improved, and ways by which the actual procedures and routines related to the administration of the system might be made more efficient and effective.

Preparation of Users Cost Accounting Standards Manual

Based upon the foregoing a users manual would be prepared for use by school districts throughout the United States which would outline:

- methods of introducing a standard cost system
- how to adapt the cost accounting system to an existing accounting system
- a compilation of existing Student Educational Units
- a procedure detailing how to prepare additional Student Educational Units
- a detailed description of the accounting procedures and techniques utilized in the cost system
- and, a guide for interpreting variations of actual expenditures from standard costs.

SECTION XII

THE HYPOTHETICAL SCHOOL DISTRICT

A Model District

In order to demonstrate how this accounting system would operate in a school district, a model community and its school system have been designed. The model of both the community and the school district are purely hypothetical, and are not intended to illustrate characteristics of either a good or bad school district. The community and school district represent a fictional, though realistic, combination of characteristics based on field trips throughout Illinois, as well as statistics accumulated through secondary sources. It is not expected that any elements of this illustration should be implemented in any school district. It is hoped however, that by describing a realistic situation, it can be more easily understood how the accounting system operates.

Ernstville School District #100

Ernstville School District #100 serves an area comprised of the City of Ernstville and unincorporated areas of Alpha Township to the north and east of the city. This school district covers an area of 31.2 square miles in which 39,569 persons reside. The area served by Ernstville School District #100 encompasses four distinct geographical areas. "Sector I", covering approximately the eastern half of the school district is largely agricultural in nature. "Sector II" is characterized primarily by suburban residential subdivisions. Sectors III and IV are those parts of the school district which are within the City of Ernstville. "Sector III" encompasses most of the city's area including residential, commercial, and business districts. "Sector IV" refers to that part of the city generally referred to as the "Inner City", as well as the major industrial sections of the city. Due to the unique features of each section of the school district, each one will be described separately. (See Map - Exhibit)

Sector 1 - The Agricultural Area

Approximately one-half of Ernstville School District #100 is characterized as an agricultural region. This sector which lies to the east of Ernstville is approximately 16 square miles in size. All portions of this sector are covered with a rich, fertile top-soil considered excellent for farming. The virtually flat surface offers an added advantage for agricultural development.

Over ninety percent of the area in this sector has been devoted to agricultural development. Large crops of grains and vegetables are harvested annually. Most of the residents of this sector live on their farm property, many separated from their nearest neighbor by a third of a mile.

In the center of this agricultural community, approximately 3 to 4 miles from downtown Ernstville, is the township seat of Alpha township. The facilities comprising this 2 block "business district" include 4 churches, 1 school (School A-I), 1 post office, 1 state bank, 2 gas stations, 1 food store, 1 drug store, 1 tavern, and 1 train depot, as well as the old town hall building. The only other parts of this sector devoted to purposes other than agriculture, are a small junior college one mile north of downtown Ernstville, and an agricultural processing plant for vegetables located a half mile east of Ernstville.

This sector is serviced by a good transportation system, comprised primarily of a major highway network. In both north-south and east-west directions, 2 lane paved highways which are maintained in excellent condition are located at one mile intervals. In addition to these major arteries, secondary arteries criss-cross the fields at distances approximately one-third of a mile apart. In addition to highways, the area is crossed by the Ernst & Ernst railroad. This line originates in Ernstville and crosses the agricultural sector in a northeasterly direction, making stops both at the processing plant and in the business district. Although passenger service is provided, this railroad is primarily a freight line.

POPULATION

The current population of this agricultural sector is, 1,440 persons or 90 persons per square mile. Over the past 40 years there has been a gradual decline in the population of the area, including a decline of approximately 10 percent over the last 10 years. Opportunities for better employment in the cities have had a significant influence, as they have in most agricultural communities. Presently most of the small farms have been consolidated, and the trend of moving to the cities is expected to decline somewhat. However, as birth rates are currently declining, and are expected to continue to decline, it is likely that the total population of the agricultural sector will continue to decrease.

The results of a declining birth rate, and a migration of younger people to the cities can be seen in the age distribution of the population. There are only 90 children or 6.3 percent of the population of pre-school age. There are 291 school age children comprising 20.2 percent of the population, or 18 students per square mile. Younger people from 19-40 years total 375 persons, residents from 41-65 years total 575 persons and finally there are 109 persons over 65 years.

A demographic profile indicates that approximately 97 percent of the residents of this area are Caucasians. Of all the community residents approximately 52 percent are female and 48 percent male. Of the persons over 25 years, fourty percent have completed high school, and 2 percent have completed college. For 94 percent of the population, English is their native language. Mobility in the community, is relatively low, particularly mobility into the community. Most residents were living in the community for more than five years, and many had been born and raised there. The only notable factor, pertaining to a changing mix of population is a continual loss of the younger people to the cities.

HOUSING

As previously mentioned, the majority of the housing units are located out on the farms, although there are a few homes clustered near the "business district". Most of the homes are owned by the occupants, and are single family residences. Less than 10 percent of the units are unoccupied and either for sale by their owners or abandoned. Most of the units, being more than 30 years old are of a frame construction with 4 to 6 rooms. The current median home value of these units is $9,000. Trends indicate that housing values will decline slightly, although land values remain high.

ECONOMICS

Except for the small canning plant, and the small "business district", the economy of the sector is derived from agriculture. Because of this, unemployment in this sector is quite low, remaining around three percent. The only retail sales generated in the sector, which come from their "business district", are generally below $1,000 per resident annually. The median family income for residents from this area is $7,000, however, it is estimated that 15 percent of the residents are living below the poverty level.

Sector II - The Suburban Sector

The surburban sector is also an unincorporated portion of Alpha township located to the north of Ernstville, which is quite different in nature from the agricultural sector. The suburban sector, covering 9.2 square miles, extends along both banks of the Blue River. The Blue River is a slowly flowing river that flows southward in a southeast direction across this sector. The terrain along the banks of the river is slightly rolling but it then flattens out to plains which are sparsely wooded.

The northern half of this sector is still largely vacant land. The rapid rate of construction of new residences in the southern half of this sector however, indicates that new home building will soon push into these currently undeveloped areas. Presently, the open areas in the northern region are disturbed only by a full 18 hole course and country club located about 4 miles north of Ernstville, and by a small forest preserve situated near the northern boundary of this sector. The forest preserve though small, is excellently maintained and is frequently visited by residents of Ernstville and surrounding communities.

As noted, the southern portion of this sector is a major residential community. The largest and most lavish areas are those farthest to the north, and those along the riverbank, while the smallest and most modest are those just outside the northern edge of the Ernstville city limits. Between these extremes, many different sizes and types of residential subdivisions are represented, all of which are well maintained, growing residential areas.

Located along the southern edge of this sector, is the area's major shopping center. Built about 10 years ago, this commercial area attracts customers from all parts of Ernstville, and the outlying areas. Of the

70 acres devoted to commercial development, approximately 50 have been developed for the current commercial complex. The wide variety of stores and shops including 2 major department stores and a major grocery store adequately meet all the needs of the area's residents. Adjacent to the shopping mall is a professional building, housing medical, legal, architectural, real estate, and accounting offices. In addition, several small business firms occupy space in the building. The complex is further complemented by an entertainment building housing a movie theater and a bowling alley. A new bank building is the newest addition to this complex.

Aside from this major commercial center, scattered local shopping facilities are found throughout this sector. Several gas stations, churches, and corner grocery stores are conveniently located to the areas's residents. The area also has a new school, B-I, completed in 1968 to meet the needs of its growing population. There is no industrial development of any type located in this sector.

Transportation in this sector is totally dependent on the roadway system. Through the northern part of the sector, the extension of the major mile roads, discussed in the agricultural sector, are the major arteries. Except for access roads to the golf course and forest preserve, few secondary arteries have been constructed. In the southern half however, although the mile roads are still maintained as the major roadways, numerous residential streets form a solid network. Some of these arteries are curved or dead-ended to give the appearance of exclusive residential subdivisions.

Public bus routes have recently been formed to provide transportation primarily to the shopping center or to downtown Ernstville. The area is also well served by the Ernstville Cab Company. The Blue River is currently used for recreation purposes only, as several low lying bridges prevent the passage of large vessels.

POPULATION

The current population of this sector is 3,338 persons. There are 363 persons per square mile in the sector but this ratio does not reflect the fact that almost all of the population resides in the southern half of sector. Until 25 years ago, little of this area had been developed. Since that time, the area has been experiencing rapid population growth, and indications are that this trend will continue. For residents of the city, who are upwardly mobile, this area provides the best residential neighborhoods. It is likely that the influx of new families into the area will more than offset the low birth rate over the next several years.

An examination of the age-break down of residents of this area indicates that the population of this area is slightly younger than average. Pre-school children account for 7.1 percent of the population, while the 711 school-age children from 5-18 years represent 21.3 percent of the population. The age breakdown of the remaining population totals 1,085 persons between 19 and 40, 1,160 persons between 41 and 65 and, 146 persons over 65.

A further description of the residents indicate that 95 percent are Caucasians, and 51 percent of the residents are male. Additionally, approximately 20 percent of these residents have a native language other than English. Consistent with the younger and comparatively affluent nature of the area is the high level of education among its adult population of those persons over 25 years, 65 percent have completed high school and 20 percent have completed college. Mobility is also fairly high among these residents, many of whom did not live at the same location 5 years ago. This is due not only to a major influx of new residents into the area, but current residents have a propensity to move to bigger homes within the area.

HOUSING

Most of the housing in this sector is comprised of single family homes. The developments have all been carefully planned with most of the homes situated on quarter acre sites, and many of the homes along the river on half acre plots. Most of the homes are owner occupied, and the only vacant units are the newly constructed units waiting for the new owners to move in. There are also several apartment buildings scattered throughout these residential developments and these too are almost completely full. Most of the homes are less than 20 years old, and a significant percentage have been constructed in the last 10 years. The average unit could be described as, a unit of from 5-7 rooms of brick construction. The median home value of these units is $25,000. For persons who rent homes in this sector, the median monthly rent payment is $125. Trends indicate that home values and rents are rapidly increasing in this area and should continue to rise.

ECONOMICS

Being primarily a residential sector, most of the persons living here do not work in this sector. In most families, only the male head of household is employed, generally in a white-collar position. Some are employed in the new Shopping Center complex, while most of the residents work in the City. Unemployment among these residents is very low, averaging about 2 percent. Retail sales, primarily from the shopping center, form the greatest source of revenue from this sector. Over the last few years, sales have averaged around $40 million. The incomes of the families in this sector, also indicate that it is a relatively well-off area. The median family income for last year was approximately $13,500. Only three percent of the families are estimated to be living at the poverty level.

Sector III - The City

The sector referred to as the city includes all areas within the city limits of the City of Ernstville, except that area referred to as the inner city and industrial area which will be described separately. The city as described in this sector covers 5 square miles. The city originally developed along the banks of the Blue River approximately 100 years ago. The Blue River today flows through the eastern edge of Ernstsville, while the city has grown primarily to the west. The flat ground surfaces throughout the City has made it suitable for continued growth.

There is almost no vacant land or open spaces remaining within the city limits. A large city park, covering about 35 acres is located on the western edge of the city. This park offers a public recreation hall and a sports center. The other large open area is the cemetery situated in the southwest corner of the city.

The major downtown and commercial area is located along the Blue River in the northeast section of the city. Dense commercial development exists for about five blocks in both north-south and east-west directions. Most of the buildings are fairly old, but well maintained. Four major department stores are represented here, as well as dozens of smaller stores, and shops. This district also contains many professional offices, as well the offices of several businesses, and financial institutions. Further the city's major entertainment center is found in the downtown area including 2 movie theaters and several fine restaurants.

In the southern part of the downtown area is a concentration of municipal buildings. Included here are the city hall, courthouse, city office building, post office, and police and fire stations. The interests of the citizens are further served by the new public library and city auditorium in this area. Finally, several small business and trade schools occupy space downtown.

Only one other commercial area of significant size has developed in the city. Near the southern city limits, an area covering about three blocks north-south, and two blocks east-west has developed. This area is primarily characterized by retail shops, though a few small businesses are located here. In addition to these commercial concentrations, several small clusters of stores, primarily of food stores and drug stores, are conveniently located throughout the city.

There are no industrial areas within this sector, and except for the commercial areas discussed above, most areas of the city is a residential area. Scattered among the residential areas are eight public schools including one high school. Also, a number of churches are located throughout the area, some of which have day-school programs affiliated with them. Futher, a major medical complex including a fully equipped hospital, and several adjoining clinics have been constructed on the northern edge of the city.

Centering around its roadway system, both public and private transportation is adequate in the City of Ernstville. Although the city does not have any expressways, five of the major east-west arteries, and two of the major north-south arteries have been widened to four-lane arteries. Further, in a seven block by six block area in the major business district, all streets were widened to 4 lanes. These major highways are well supplemented by a complete network of secondary arteries. A well-run bus company has routes that cover all parts of the city, and the Ernstville Cab Company provides prompt service to the residents.

Public transportation into and out of the city is available by bus or train. Ernstville is on the national bus routes of the Wolverine Transportation Company. Rail service is offered from the depot located in the southeastern part of the city. As previously mentioned, the Blue River is crossed with numerous small bridges, and is not suitable for transportation purposes.

POPULATION

The population of the City of Ernstville is 20,321 persons. The population density over the 5 square mile area is 4,064 persons per square mile. Over the past 20 years, the population had been increasing at the rate of about 1 percent a year, but has stabilized in the last couple years due to lack of additional vacant land, and the low birth rates. The City is currently engaged however, in a program to attract new industry to the area, and is anticipating extending its city limits. It is expected that the population of the city will continue to grow over the next several years.

An examination of the age distribution of residents indicates that there are 5,060 persons between 5 and 18 years. This number of students represents 24.9 percent of the population. There are only 1,425 pre-school age children, indicating that school enrollment may decline slightly over the next few years. The adult population is distributed as follows: 6,000 persons between the ages of 19 and 40 years, 6,800 persons between 41 and 65 years, and 1,036 persons over 65 years.

It is difficult to represent the population as typical of any one group, because it is comprised of a great variety of persons. Approximately 15 percent of the population represents racial minority groups, and 20 percent of the population speaks a native language other than English. About 48 percent of the population are males. The education attainment of the adult population indicates that approximately 55 percent have completed high school, and about 10 percent have completed college. Mobility among the City's residents is not great as indicated by the number of persons who have lived in their current residence for more than 5 years. The limited inflow and outflow of population nearly cancel each other out. Some of of the residents have been moving from the City to the Suburban sector, while some residents from the innner city as well as new persons to the area have moved into the City.

HOUSING

The type of residential housing in Ernstville also covers a wide range. Approximately 80 percent of the units are single family units, although only 60 percent of the units are owner occupied. The oldest residences in the city are located in the eastern and northern sections of the city, while the homes become progressively newer the greater the distance from the business district. Vacancy rates for these homes which average from four to six rooms, remain low, averaging about 2 percent. Nearly all the homes in the city, which represent a variety of types of construction, are maintained fastidiously. Only in the very eastern sections surrounding the commercial district, and in the areas on the edge of the inner city are the residences not adequately maintained.

The home values in the city vary according to the age and type of construction of the unit, but the median home value for units in the city is $18,000. For persons who rent housing units, the median monthly rent payment is $95. As the city is expected to continue to grow, the home values and rents are anticipated to remain stable or increase slightly.

ECONOMICS

The residents of this sector are employed in a wide variety of activities. About half of the employees are engaged in white collar activities, and half in blue collar jobs. In about a third of the families there are two wage-earners. Although many of the residents are employed in the City of Ernstville, a significant number of persons are also employed in the industrial area located in the inner city area, and at the shopping center complex in the suburban sector. As most of the adults have some type of marketable skill, unemployment is kept at about 4 percent.

The economic base of the City is derived from both the retail outlets, and the numerous small businesses. Retail sales in the city total about $25 million a year. The median family incomes of residents in the city is $10,800, however 8 percent of the families live on incomes considered to be less than poverty level support.

Sector IV - The Inner City

The last distinct area comprising Ernstville School District #100 is the inner city. The sector is actually within the municipal boundaries of the City of Ernstville, but because of its unique characteristics, it is described separately. The inner city is approximately one square mile in size. This sector is bounded on the north, west, and south sides by other sections of the city of Ernstville. The inner city extends to the eastern city limits which are adjacent to the farm lands. The Blue River also flows through the eastern part of the inner city.

The only vacant land remaining in this sector is the old city park. A larger and newer public park has been developed in the western part of the city, but this original city park is frequently used by the residents of this sector, many of whom who do not own automobiles, and are limited to neighborhood facilities.

The southeastern part of this sector is the site of the city's heavy industry. Currently close to 125 acres are developed into an industrial complex. Some of the buildings date back over fifty years, while the newest was completed only three years ago. The city's industry began about 60 years ago, with skilled tradesmen building engines for new industrial machinery. The city has continued to build upon this base, and today Ernstville is an important reserach center into engine design. Most of the industrial output today comes from one major plant which assembles truck engines. It is likely that the industrial base of Ernstville will continue to grow, and replace more and more of the aging residential areas of the inner city.

Most of the remaining sections of the inner city are densely occupied, aging residential areas. To serve these residents however, are two small commercial areas, each comprised of a food store, a drug store, a dime store, a cleaners and a doctor's office. There are also two elementary schools located in this sector, and six old stone churches.

Transportation in this sector is adequate. The road-way system was designed at a time when this area was one of the city's prestigious residential sections, and two of the major streets are boulevards. However, because most of the properties do not have garages, and because of the dense population in this small area, the streets are often crowded. Also, the number of residents who are dependent on the city bus system is relatively high. The railroad line crosses through the industrial complex, and a spur has been installed to move the products from all portions of the complex down to the main line. Within the industrial complex, the Blue River, has a limited transportation use.

While no part of Ernstville can be considered unsafe, the inner city does have the highest crime rate in the area, primarily from petty robbery. Most residents of the Ernstville area rarely travel through this area, except for those who are going to their jobs in the industrial complex.

POPULATION

In this approximately one square mile area, there are 14,470 residents. As the city grows in size, it appears that its urban problems also increase. Over the last ten years, this area has become more and more densely populated, and the area referred to as the inner city seems to slowly extend to the west and south. However, with the recently declining birth rates, and the city's current concerted efforts in its job training programs, it is expected that the inner city population will not increase greatly. It is hoped that the area's neighborhoods will be rejuvenated over the next ten years.

The age distribution of the population is fairly constant except for a smaller number of persons in the very young and old categories. Although only 6 percent of the population is of pre-school age, there are currently 3,632 school age children between 5 and 18 years, accounting for 25.1 percent of the population. The adult population totals 4,500 persons between 19 and 40, 5,038 persons between 41 and 65, while only 430 persons or 3 percent of the population is over 65 years.

A profile of the population indicates that approximately 40 percent are members of racial minority groups, and of the Caucasian population approximately 25 percent do not speak English as their native language. Only 47 percent of the population in this area is male. The educational level of these residents is low. Less than three percent of the population has completed college, and approximately 35 percent have completed high school. The family structure in this area is dissimilar from that in other parts of the school district. There is a relatively large number of families with a woman as head of the household. Also families tend to be larger than in other parts of the school district. Often relatives other than the immediate family members are living together.

Mobility among these residents is quite high, and few persons live in the same residence for a five year period. Mobility out of the sector is increasing as more residents are becoming skilled employees and increasing their incomes. As industry grows however, the area attracts more unskilled labor, many of whom move into this area. Mobility within the area is also high for a variety of reasons including difficulties meeting rent payments, changing family size, etc.

HOUSING

A general impression of the housing in the inner city is its relatively poor condition. Abandoned or vacant units numbers about 20 percent of the total housing units, and many of the occupied units are in need of repair. Nearly all of the housing units are at least thirty years old, and represent several types of construction. Approximately 30 percent of the housing units are single family units. Many housing units which were formerly single family homes have been divided into several apartment units. Only 25 percent of the housing units are owner occupied. The value of housing units has been declining over the last several years. Currently the median home value is $9,500, and the median monthly contract rent is $70. Although the value and condition of housing units is relatively poor throughout the whole sector, the area appears to be divided into two neighborhoods along racial lines. The Black families tend to live in the eastern part of this sector while the White families live in the western portion of the sector.

ECONOMICS

The inner city is the location of the industrial base of the City of Ernstville. The plants in this complex provide employment to more of the area's labor force than any other area. Commercial sales in this area are quite weak, and most facilities are only marginally profitable, and contribute little to city revenues.

The areas residents are employed primarily by two groups. Many work for the City of Ernstville, and most of the others work in the industrial complex, generally as unskilled labor. A smaller percentage of employees also work in the downtown business and commercial areas. Because of the generally unskilled labor force living in this area, unemployment has continually been a problem, usually averaging about 8 percent. In many families, however, there are two wage earners, both of whom have low incomes. The median family income for residents of this sector is $7,500. Approximately 20 percent of these are estimated to be earning less than poverty level incomes, and most of them are receiving some type of welfare assistance.

SURROUNDING AREA

The City of Ernstville is a self-sustaining, growing community. Its residents have little need to travel to neighboring communities for their goods or services. However, there are two major cities, not far from Ernstville which can provide for any special requirement or desire the residents of Ernstville may have. Graysburg a city of 60,000 is located 32 miles west of Ernstville, and Brown's City, the state capitol with a population of 175,000 is situated approximately 60 miles northeast of Ernstville. Between these two cities, Ernstville residents have available most any specialized service desired, including a large state university, a number of vocational schools, specialized medical services, and a variety of cultural attractions. Few residents of Ernstville are employed in either of these cities.

Ernstville School System

Of particular interest in this study of Ernstville, U.S.A. is its school system. Ernstville District #100 is an elementary school district serving children between the ages of 3 and 14 years, although educational programs for 3 and 4 year olds are only provided for those children with special needs.

The following nine schools comprise Ernstville District #100:

A-1: School A-I is located in the small downtown area of the rural sector. It is the only school located in this sector covering a 16 square mile area, extending 2 miles east of the city limits, and 8 miles north and south. This school serves the students living in the rural area who are in kindergarten through fourth grade. Because the number of students who live in this sector is so mall, the number of educational opportunities that can be offered here is also small. For this reason, the School Board felt that it would be best to bus students in grades 5-8 who live in the rural sector, to a city school.

B-I: School B-I is the only school located in the suburban sector. Although the school boundaries cover a 9.2 square mile area north of the city, almost all of its students come from a 4 square mile area located immediately north of the Ernstville city limits. This school serves all the area's students between kindergarten and 8th grade.

C-I: School C-I is located in the southeast corner of the City of Ernstville. This school serves children in grades 1-8 living in approximately a 1 square mile area. It also serves the students in the 5th to 8th grades who live in the rural area.

C-II: School C-II serves city students in kindergarten through 8th grade who live in the southwest part of the City of Ernstville. Its boundaries also cover approximately a one square mile area.

C-III: School C-III is located in the central part of the city. This school is again designed to serve kindergarten through 8th grade students living in a square mile area.

C-IV: School C-IV also serves students in kindergarten through 8th grade. The school boundaries cover a 2 square mile area in the north part of the city. There are no students however, who live in the downtown business district, and only a few families who live to the east of the downtown district.

D-I: School D-I is located in the northern part of the inner city area. Because of the dense population in this area, the school boundaries cover only a half square mile area, a portion of which is located in the industrial complex. This school serves all students in kindergarten to 8th grade.

D-II: School D-II is located in the southern part of the inner city, also serving students in kindergarten to 8th grade who come from less than a 1/2 square mile area.

E-1: School E-I is located in the center of Ernstville, near the point where the city becomes the inner city. This school serves only Trainable Mentally Handicapped (TMH) children between the ages of 3 and 14, who live in any part of the Ernstville School District.

With few exceptions, the Ernstville School District meets all the special needs of the students living within its boundaries. With the exception of the TMH students, all the special education students attend school in the same buildings noted above, where all the regular education students attend school. Because of the nature of the TMH child's disability and his special needs, it is felt advisable that he attend school in a separate facility.

Within the delineated boundaries of the Ernstville school district, there are also 4 non-public schools. There is a total of 6,689 students in Ernstville of kindergarten to Grade 8 age. Of this total 1,566 students go to non-public schools. There is one private school, located to the west of the suburban shopping center with an enrollment of 240 students. There are also 3 parochial schools of different denominations with a total enrollment of 1,326 students. Further, there are 7 students with specialized needs who attend schools outside the City of Ernstville. The remaining 5,116 students are enrolled in the Ernstville Public School District #100. Because the non-public schools in Ernstville provide no special education classes, all students with special needs are enrolled in the Ernstville Public Schools.

Ernstville School District #100 operates school 185 days a year. No summer sessions are held for students in kindergarten to 8th grade in the public schools, however, the private school does have a summer session. The official building hours and school hours are set by each of the schools to best meet the needs of the neighborhood which they serve. Most students are in school approximately 7 hours a day. Kindergarten students attend half day sessions which may be either in the morning or the afternoon. Preschool programs are held only in the mornings. In other special education programs, the length of the school day may be altered to meet the student's needs.

SPECIAL EDUCATION SERVICES

The Ernstville School District #100 serves the special needs of its students who exhibit the following handicaps as defined in the State of Illinois regulations. A special education student includes all students who receive special services, on a regular basis, regardless of the amount of time he spends in the special program.

1. Educable Mentally Handicapped (EMH) - This program serves the child whose "intellectual development, mental capacity, adaptive behavior and academic achievement are markedly delayed". The EMH program serves those students with a moderate mental impairment.
2. Trainable Mentally Handicapped (TMH) - This program also serves the child whose "intellectual development, mental capacity, adaptive behavior and academic achievement are markedly delayed". However, the TMH program is designed for the child with the severe mental impairment.
3. Emotionally Disturbed/Behavioral Disorders - (Socially Maladjusted) - This program serves the child who "exhibits an affective disorder and/or adaptive behavior which significantly interfers with his learning and/or social functioning," as well as the child who "exhibits educational maladjustment related to social or cultural circumstances".
4. Hearing Impaired (HI): This program is for the child whose "residual hearing is not sufficient to enable him to understand the spoken word and to develop language, thus causing extreme deprivation in learning and communication. Or, he exhibits a hearing loss which prevents full awareness of environmental sounds and spoken language limiting normal language acquisition and learning achievement".
5. Physically Handicapped (PH) - The child with a physical impairment "exhibits a physical or health impairment either temporary or permanent which interfers with his learning and/or which requires adaptation of the physical plant".
6. Multiple Handicapped (MH) - The child with a multiple impairment "exhibits two or more impairments severe either in nature or in total impact, which significantly affect his ability to benefit from the educational

program".

7. Learning Disability (LD) - This "child exhibits one or more deficits in the essential learning processes of perception, conceptualization, language, memory, attention, impulse control or motor function."
8. Visual Impairment (VI) - The child in this program has a "visual impairment such that he cannot develop his educational potential without special services and materials."
9. Speech and/or language disorder - The child receiving special speech instruction "exhibits deviations of speech and/or language processes which are outside the range of acceptable variation within a given environment and which prevent full social or educational development".

Included among the special education programs offered, the Ernstville School District also began an early childhood LD program for 3 and 4 year old children with special problems. Although the school system attempts to avoid attaching a particular disability category to any of its students, it is especially concerned with avoiding the classification of these early childhood students whose needs and problems have not yet been specifically identified.

The selection of students to be considered for special education programs is an on-going process. There is a district wide testing program designed so that each child is checked for the existance of any of these problems every other year. Additionally, referals are constantly made when it is suspected that the child may have a problem. These referals come from the child's parents, his teachers, his doctor, his church or anyone else who has contact with the child and suspects there may be a handicap. From both the referals and the testing process, potential special education students are identified.

Those students who are identified as possibly having a problem are given a thorough evaluation. Students are examined and tested both by school district employees and a consulting staff who are members of the area's medical center or mental health clinic. The child's home is also visited and the parents are interviewed. Upon completion of the evaluation, a decision is made as to the child's eligibility for special education. However, the consultation and evaluation continue indefinitely and each child in special education is periodically tested for a change in placement, and those not originally considered eligible may be retested. A child may enter or leave special education classes at any age or grade level.

If the child is determined to be eligible for special education, one of three steps is followed. Most are placed in the appropriate special education class in Ernstville District #100. In some cases however, there may be no space available for the student, and if his disability is not judged to be severe, he is placed on the special education waiting list while remaining in the regular classroom. Finally, in a few cases, the student's disability may be judged so severe that he cannot be handled in any of the Ernstville special education classes, and he will be placed in the appropriate special school outside the district.

Currently, the Ernstville School District serves 806 students with special needs within its school district. It also has 221 children on the waiting list and 7 students who attend school outside the district. The classification of the students served by Ernstville is as follows: 157-EMH, 32-TMH, 51-ED/BD (Soc Mal), 26-HI, 16-PH, 3-MH, 142-LD, 5-VI, 369 - Speech, and 5 in the early childhood program. Most of the programs that are experiencing overcrowding and have students waiting for placement, are those programs dealing with less severe disabilities. No student with a severe disability is kept waiting. Among the 221 students waiting for special instruction, 180 are waiting for speech correction, 15 for the EMH program, 10 for the BD/ED (Soc Mal) program, 4 for the LD program, and 10 for an early childhood class.

There are additionally, 7 children with special needs, which require that they attend school outside the district. There is one blind student who attends school in an adjacent school district for whom the Ernstville School District incurs the costs. There are 2 deaf students, one attending a private facility for which the Ernstville district is responsible for the costs, and the other attending a state facility. There is also one severely emotionally disturbed child who attends a private residential facility for which Ernstville pays the costs. Finally, there are 3 sub-TMH children who all attend a state residential facility. The Ernstville School District does not incur costs for these 3 children.

ASSIGNMENT OF PUPILS TO SCHOOLS

The guideline followed by the school district is that all students will attend the school within whose school boundaries they live if at all possible. All regular education students attend their "home" school with the exception of the rural students in grades 5 to 8 who attend city school C-I. There is no attempt made to bus students for racial reasons, to fill less crowded facilities or for any other reason.

The same guideline exists for special education pupils, and many of the students do attend their "home" school. However, due to the low incidence of some of these handicaps, not all of the schools are able to conduct classes in all of the programs, and it is necessary for students to travel to the school in which their special class is located. The selection of the location for special education programs depended both on where most students enrolled in the program lived, and on the availability of space in the existing school buildings. The location of self-contained special programs which are not held in every school is as follows: Intermediate EMH classes are held only in schools C-I, C-III, C-IV, D-I and D-II; junior high EMH classes are located in schools C-IV, D-I and D-II; all TMH students attend the E-I TMH Center; all ED/BD (Soc Mal) students attend school C-I, all hearing impaired students attend school C-III, all physically and multiply handicapped students attend school C-II, and the early childhood program is held in school B-I.

Because of the policy that all students attend their 'home' school, enrollment varies considerably among the different schools in the district. The characteristics of the student body and the trends of school enrollment correspond to the general demographic and socio-economic characteristics of the surrounding neighborhood, and so these factors also vary considerably between schools. The smallest regular education school in the district is School A-I with a total enrollment of 96 students. Regular education classes vary between 16 and 19 students each. School B-I is the second smallest school with an enrollment of 375 students, and regular education classes ranging between 18 and 22 students. In the city the smallest school is C-II with an enrollment of 561 students, and regular education classes which range between 26 and 32 students. Schools C-I and C-III have approximately the same enrollment with 687 and 666 students, respectively. These classes vary between 21 and 27 students in regular education programs. Schools C-IV, D-I and D-II are the district's largest schools with enrollments of 888, 928, and 883, respectively. Regular education classes in these schools range from 30 to 35 students. The smallest school in the district which houses the

MH program has an enrollment of 32 students. The School District, however, has selected 30 students per class as an average to be used for budgetary purposes. In classes with greater than 30 students, the child may be unable to receive adequate individual attention, and in clases with significantly fewer students, the cost per student may be unjustifiably high.

Attendance at each of these schools is quite high, and the special education students generally maintain as consistent attendance records as the regular education students. Average daily attendance for each of the district's schools varies between 88 percent and 96 percent, with a district wide average daily attendance of 92 percent.

CLASSROOMS

There are several different types of classroom arrangement in the Ernstville district. In the general education program, there are generally two types of classrooms; one for the elementary school child up to the 6th grade, and a junior high arrangement for 7th and 8th grades. In the special education program, there are 3 types of instructional programs to which the special education child may be assigned; a self-contained classroom, a resource room, or itinerant instruction.

First, all kindergarten to 6th grade students are assigned to elementary school classrooms. These classrooms are actually self-contained classrooms because the student stays in the same classroom with the same pupils all day. He has the same teacher who teaches all of his subjects. The only exception to this pattern is for physical education. Only one grade is represented in each of the classrooms. The students are randomly placed in the classes with no special attention given to ability grouping or other special classification.

The 7th and 8th grade students, have a classroom pattern similar to a high school program. Although most subjects are required, yet they have a limited selection of some subjects. The students change rooms for their different subjects with the corresponding change in class membership and teachers. Each student is also assigned to a homeroom class for administrative purposes. Each teacher teaches more than one subject, but she specializes primarily in one which she then teaches most of the day. Teachers may teach the same subject to 7th and 8th grades, however, all 7th and 8th grade classes are kept separate. Although the students are not specifically placed in classes by ability grouping, the feature of subject selection and consequent scheduling adjustments causes 7th and 8th classes to have a more homogeneous class membership than in the elementary grades.

The self-contained classroom is one type of special education instruction. The self-contained special education programs are for children who require a great deal of special attention. Students in the self-contained programs are assigned to the special education classroom and spend almost all of their time in this same classroom with the same teacher instructing them in all subjects. The objective of the school district is to mainstream all special education students as much as possible. The students assigned to self-contained special education programs have individually designed programs to integrate them into the regular classroom as much as possible. It is hoped that these students will gradually become more and more integrated and eventually their problem can be corrected, and they can return to the regular classroom. Except for the physically and multiply handicapped students, most special education students at least attend physical education classes with the regular students. However, for students assigned to the self-contained special education classroom, their handicap is severe enough so that the focus of their education is in the special classroom.

The class sizes of the special education classroom are limited by state regulations. The early childhood and MH programs are limited to 5 students to 1 teacher. The ED/BD (Soc Mal), V-I, deaf, and PH programs, are limited to 8 students per teacher. The LD and TMH programs cannot exceed 10 students per teacher, and the HI and primary EMH classes are limited to 12 students per teacher. Finally, the maximum class size of 15 students per teacher exists in the intermediate and junior high EMH programs. Although the state regulations leave the determination of class size slightly open to interpretation based upon a judgment of what constitutes a moderate, severe or profound handicap, all of the Ernstville's special education classes appear to meet these regulations at all times.

Of the 806 total special education students, 232 are assigned to self contained programs in the following schools:

School A-I: 1 EMH class - 6 students
School B-I 1 EMH class - 7 students
1 early childhood - 5 students
School C-I 2 EMH classes - 16 students
4 ED/BD (Soc Mal) classes - 28 students
School C-II 1 EMH class - 6 students
3 PH classes - 13 students
1 MH class - 3 students
School C-III 2 EMH classes - 12 students
3 HI classes - 19 students
School C-IV 4 EMH classes - 37 students
School D-I - 3 EMH classes - 21 students
School D-II 4 EMH classes - 27 students
School E-I 4 TMH classes - 32 students

The resource room is a second type of special education program existing in Ernstville's special education program. A resource room is established in a school whenever the demand exists for this service. In the resource program, the child is assigned to a regular classroom where he spends at least 50 percent of his time. The other part of his time which varies according to the needs of the student is spent in the special classroom. If there is a self contained classroom of the particular handicap already in the school, the child may go to this classroom. Or, the resource teacher may have only resource special education students in her class. If there are not enough resource students in the school to require a full-time resource teacher, she may work at more than one school with an assigned room in each school.

The class size of the resource room is constantly changing as students go and return from their regular rooms. In the resource classroom, the teacher helps the student with his regular classroom work as well as performing special work. For some resource students, all his instruction in a particular subject may come from his special classroom.

In the Ernstville School District, 199 students receive special help in resource rooms. All of the 142 children with LD problems are assisted by resource room instruction and 23 of 47 ED/BD (Soc Mal) students attend resource rooms. The distribution of resource students among the various schools is as follows: School A-I - 5 students, School B-I - 18 students, School C-I - 24 students, School C-II - 24 students, School C-III - 26 students, School C-IV - 35 students, School D-I - 35 students, and School D-II - 32 students.

The remaining type of special education service is itinerant instruction. The student receiving itinerant instruction is assigned to a regular classroom and sees his itinerant teacher periodically. The itinerant student as well as the resource student always remains in his "home" school. The frequency with which the child sees the special teacher is again determined according to his needs. An itinerant teacher is usually not in one school full time and has no assigned classroom within the school. The location at which she meets with her students may change frequently depending on whatever room is available at a particular time. The type of instruction handled by the itinerant teacher generally focuses on instruction in how to correct or deal with the student's handicap. There are 375 students in the Ernstville School District receiving itinerant special education services. Of this total, 369 of the students have language or speech disorders. The number of students in each school receiving itinerant services varies with the size of the school's enrollment. Enrollment in this program ranges from School A-I which has 7 students, while School D-I has 72 students receiving special attention.

STAFF

There are a number of different types of personnel who compose the staff in each of the Ernstville Schools. The largest group of staff members are the professional staff permanently assigned to one school. This group includes all of the teachers in the regular education program, except for some kindergarten teachers, and all of the special education teachers in the self-contained program, as well as some of the special education resource teachers. This group also includes many of the special activity teachers such as physical education, health, music or art teachers. In addition, most Ernstville Schools have a full time librarian teacher, and a reading resource teacher, and some schools have a full time nurse. Finally, the principals and assistant principals complete the full time staff of most of the schools.

The second group of professional staff is that group which is assigned to more than one school. This group is comprised of some kindergarten and special activity teachers, some special education resource teachers as well as itinerant special education teachers, and some of the school nurses. The district also employs a physical therapist part-time who is shared with the high school. The assignments to the various schools change annually depending on the specific needs of the students in the school each year.

Currently, the school district employs 7 school principals, and 4 assistant principals. Also the system employs 7 school nurses, 7 librarians, and 7 reading resource teachers, as well as approximately 235 teachers.

All of these school employees have contracts with the school system. All regular education, special education and special activities teachers, and librarians, are payed off the same pay schedule which is based upon the teacher's academic degree and the number of years she has taught in the Ernstville School System. Teachers also receive an additional payment based upon a fixed schedule for extra duties they perform, such as intermural sports coach or safety patrol supervisor. The contracts extend for a school year period of 10 months. There is an allowance for 9 sick days per school year included in the contract. The School District feels that any teacher with the appropriate bachelor's degree and teachers certificate is qualified to teach in any of the District's classrooms. Although their staff is expected to have a degree, no experience is necessary for placement in the district's classrooms.

In order to adequately plan for the teacher's absentees, a substitute policy was designed which assigns substitute teachers to particular schools. Based primarily on the number of teachers in a school, substitutes are assigned to a school on either a full or part-time basis. These teachers are contracted teachers who work full time in the school(s) to which they are assigned. They move from classroom to classroom to fill in for any teacher in the building who is absent. This payroll expense has been recognized as part of the school's budget. However, should a greater number of substitutes be needed on any particular day, the school has a list of substitutes it may call on a daily basis. These teachers do not have a contract with the school system but are paid on a daily basis.

The compensation for the remaining school professional staff includes a salary schedule for school nurses. All school nurses work on a 10 month school year calendar, at salaries based upon their years of experience in the school system. The principals and assistant principals are included in compensation plans for administrative employees. These employees work 11 months a year.

In addition to the employees who spend their full time in the schools, the system has a supportive professional staff that can be called upon when it is needed. The district employs 2 psychologists and 2 social workers on a full time basis with contracts extending for 10 1/2 months a year. These staff members can be called to any of the schools to deal with a special problem that may arise. These employees also are involved in the continual student testing and evaluation procedures throughout the system.

The other group of supportive staff includes a number of medical personnel that are used on a consultive basis. These physicians are paid a fixed fee for each student visit they make during the year. The consultive group consists of a psychiatrist, a pediatrician, a physiatrist, an orthopedic surgeon, a neurosurgeon, an ophthalmologist, and an optometrist. The Ernstville Medical Center does not have a hearing clinic or otologist on its staff.
If parents disagree with the school's decision on eligibility for the hearing impaired classes, the parent himself may choose to take his child to the hearing clinic in Brown's City for testing.

In addition to the professional employees of the school system, the assistance of many others is required. One such group of employees are the aides. The system employs two types of aides; clerical aides and instructional aides. The instructional aides work in the classroom with the teacher, directly assisting the student in his learning. All aides are paid the same annual salary which was $4,750 for the last school year. The clerical aides are responsible for assisting primarily with paperwork; preparing materials for class presentation, and grading papers. The clerical aides are all paid a weekly wage of $110. Some schools also have an aide working in the library who is paid $96 a week for a 7 hour day. The use of aides is dependent on a number of factors including the size of the class, the type of students in the class, the grade level, the subject matter and the teacher's interest in having an aide.

Other school employees fall into four groups. First is the school secretarial and bookkeeping staff whose duties involve overall school administrative matters. Each school has a secretary/clerk who is paid $124 a week. Secondly, are the janitorial and maintenance personnel which are assigned to each school. These employees are paid on an hourly basis. Third are the cafeteria personnel who are also paid on an hourly basis and work in each school.

The last group is comprised of special attendants which are required in some of the special education programs. One special attendant works in School C-I with the ED/BD (Soc Mal) program. This attendant assists with behaviorial and discipline problems among these students. School C-II has 2 special attendants working with the PH and MH programs. The attendants are needed to help students get in and out of the classrooms, to help them with their coats, to help them at lunch and in the washroom, etc. Special attendants are paid by the week, depending on which special education program they are involved with. These attendants complete the staff which works in the various schools.

TRANSPORTATION

The Ernstville School District has been designed so that most of its students are able to walk to school. Transportation is provided however, for students who live greater than a half mile from school. The Ernstville School District is also legally required to provide transportation for its special education students. Such transportation is available, yet most of the special education students who have only a moderate handicap, and attend their "home" school, choose to walk to school with the regular education students. The Ernstville School District also provides transportation to both regular and special education students for any field trip or special after school activity.

All transportation provided by the Ernstville School District is a contracted service. It is fully paid for by the district with no cost to the student except for special field trips. The district does not own any of the buses, nor is it responsible for vehicle maintenance. The bus drivers are not employees of the Ernstville School District.

For daily transportation to and from school, the Ernstville District uses 19 regular school buses, 2 especially equipped vans for the physical handicapped children and 4 taxi cabs for visually impaired students. On the regular buses, in some cases regular education and special education students ride the same bus. These buses are parked at the schools throughout the school year. When the driver begins his route, he will begin at the furthest point from the school, and pick up students at specified stops on the route back to the school. The physically handicapped and visually impaired students who travel to school in the vans and cabs are picked up at and returned to their homes.

LUNCH

Many students in the Ernstville School System eat lunch at school, although in 4 of the 9 schools students may go home if they wish. Because none of the schools are equipped with cafeterias, the schools purchase precooked frozen lunches which are then warmed in special heating ovens. There is one hot meal served daily, and students may select either to purchase a hot lunch or to bring their lunch from home. Those who bring their lunch may purchase milk. All students who are financially able, purchase their hot lunches, however, the school system also has a free lunch program. Those students who meet the financial requirements are served a hot lunch daily. Last year, approximately 15 percent of the students received free hot lunches.

Each school has a cafeteria manager who is responsible for the lunch room. She is responsible for ordering the lunches and other lunchroom supplies as well as serving the lunches. In many of the schools, she has an assistant. In addition to the personnel assigned especially to the cafeteria, there is a teacher on duty for general supervision in the lunch room each day. The teachers rotate this duty among themselves, with the number of times they are on duty depending on the number of teachers in the school.

PHYSICAL PLANT

The nine school buildings in the Ernstville School System vary considerably. Of the nine buildings, 8 are owned by the school district. Approximately 6,000 square feet of space is leased for the TMH Center. The oldest owned school building was completed in 1939, and the newest in 1969. These buildings were designed to accommodate from 150 to 860 students, and range in size from 12,600 square feet to 66,544 square feet.

In addition to a number of classrooms of varied sizes, all schools except A-I have a library. All of the schools also have a gymnasium and lunch room. In some schools where the cafeteria is not a separate room the gymnasium is usually designed with tables and benches that fold into the walls. Both the gymnasiums and cafeterias are used for a variety of programs and meetings. All of the schools are also provided with adequate washroom facilities for the students, as well as a separate faculty room and washroom for the staff. Finally, all schools have a separate administrative area and nurse's room (except A-I).

In addition to these facilities found in all Ernstville schools regardless of their age and individual design, many of the schools have special facilities. For instance, a fully equipped hearing laboratory was added to school C-III in 1970. In 1958, a physically and multiply handicapped wing was added to School C-II. This wing is a one-story structure with ramps and railings throughout the building. It also contains an equipped physical therapy room.

SUPPLIES AND EQUIPMENT

All the classrooms in the Ernstville school system are adequately equipped for their appropriate educational purpose. Supplies and equipment are generally placed into one of three groups. The first group comprises the standard equipment found in every classroom. In the Ernstville school system this includes student's desks, a teacher's desk and chair, an activity or reading table, a file cabinet, a bookcase, a screen, blackboards, and a clock. This standard list is then modified to meet the specific needs of the special education classes. For example, an overhead projector is considered as part of the standard equipment in the hearing impaired classrooms, and special desks and electric typewriters are required in the physically handicapped classrooms.

A second group of equipment includes equipment which is standard in all the schools but is shared among a number of classrooms. The number of classrooms which share the same piece of equipment depends upon the anticipated demand for the equipment. Included in this group are movie projectors, film strip projectors, record players, tape recorders, overhead projectors, etc.

The last type of supplies includes those which are felt to the discretion of each classroom teacher. They include whatever, she feels is necessary to teach her classes during the school year. This includes standard textbooks, workbooks, phamplets, science equipment, felt boards, puzzles and games, etc.

It also includes the supplementary materials such as dictionaires and encyclopedias considered necessary for the classroom. Further included in the teachers' supply list are all the consumable supplies such as paper, paints, pencils, crayons, tape, dittos, etc. All expenses for supplies and equipment are incurred by the school system with the occasional exception of a special student newspaper to which the students select to subscribe.

CENTRAL OFFICE

Overseeing the operations of the Ernstville schools is the central administrative staff which is located in an especially designed wing of School C-III which was completed in 1970. The central office staff is comprised of the following personnel: the district superintendent, the assistant superintendent, the director of special education, the financial manager, the curriculum coordinator, and the reading coordinator. The social workers and psychologists also work out of the central office. To support this administrative staff, the system employs a bookkeeper, a secretary, three clerks, and engineer, and a janitor. Also assigned to the central office is a maintenance crew comprised of a painter, a carpenter, a plumber, and a electrician, who attend to problems in all of the school system's buildings.

Financing for the school system comes from a number of sources:

from local taxes, from state funds, and from federal title programs. The current education tax rate for the school system is ___________, the building rate _______, and the transportation rate is ________. Considered in the formulation of the education rate, is the option the Board has to levy a tax to construct special education buildings without a referendum. The school also receives funds under Title I, Title II, Title III, Title IV, and Title VI as well as other government programs. To ensure that Title I funds supplement rather than supplant local funds a comparability test was instituted in the summer of 1973. Although the Ernstville system has not yet tested its schools, it appears that it qualifies to continue receiving these funds. Teachers in all schools are paid from the same schedule, and aides are often used in the large classes.

Based upon the funds the Ernstville School District has available, last year's expenditures per pupil were ___________.

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